SUBSTANCE ABUSE AMONG UNDERGRADUATE STUDENTS AT A UNIVERSITY IN ETHIOPIA

by

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Submitted in accordance with the requirements

for the degree of

DOCTOR OF LITERATURE AND PHILOSOPHY

in the subject

HEALTH STUDIES

at the

UNIVERSITY OF SOUTH AFRICA

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JULY 2017

DEDICATION

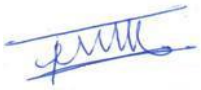
To my mother Fotyen Zenebe who lived no more than two decades when she passed away due to untreated illness when I was just 4 years old. Mom, your kid has grown by the help of God. May you rest in peace!

To my wife Mihret Debebe who survived an accidental sub-dural hematoma at the mid of the course of this study.

Student Number: 46529705

DECLARATION

I declare that **SUBSTANCE ABUSE AMONG UNDERGRADUATE STUDENTS AT A UNIVERSITY IN ETHIOPIA** is my own work and that all sources that I have used or quoted have been appropriately acknowledged by means of complete references. This work has not been submitted before for any other degree at any other institution.

Signature:  Date: 25 June 2017

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ACKNOWLEDGEMENTS

This work would not have been completed without the unlimited support and encouragement provided by my supervisor Professor AH Mavhandu-Mudzusi and Co-supervisor Professor JH Roos. I therefore immensely thank them for igniting my potential to work and complete my studies, while providing me with their endless support throughout the course of my studies. I also wish to extend my heartfelt thanks to the following people for their unwavering support during the course of my studies:

- Ms Tsige Abera for courteous cooperation to all my inquiries.
- University of South Africa (UNISA) staff at Akaka learning centre for their cooperation to my inquiries.
- UNISA library staff at Akaka learning centre (especially Ms Yemisrach and Mr. Addisalem Desta) for their unwavering assistance with my inquiries.
- Mr Said, Academic Vice President of the target University for his cooperation and support during my research studies.
- Dr Shide Hassen, Medical Director at target Hospital, for his cooperation and support during my research studies.
- Mr Tedros Siyum and Sr Ababa Birhanu, staff members at the target Hospital, for their assistance during the qualitative data collection.
- The study respondents and participants for their time and full cooperation throughout this study.
- The target University for granting me permission to collect data.
- The peer reviewers for reviewing and forwarding valuable inputs during the process of guidelines developed.
- The target University Office of Registrar staff members (Ms Tsige, Ms Hiwot) for their cooperation with required access to data.
- Mr Melkamu Tebeje for his assistance in statistical analysis.
- My wife Mihiret Debebe for all her personal and emotional support throughout the course of this study.

- UNISA for providing me postgraduate bursary.
- The target Hospital for granting me permission to collect data.
- Mr Sipho Ndlovu for critical reading and editing this study.

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ABSTRACT

This convergent parallel mixed methods study based on Social Ecological Model investigated substance abuse among undergraduate university students at one of the universities in Ethiopia. For quantitative strand of study, data was collected from 422 randomly selected undergraduate students. Data were analysed using Statistical Package for Social Sciences version 17. For qualitative strand, face-to-face interviews were conducted with 17 purposefully selected participants directly involved with students abusing substances. The findings revealed that factors at individual, interpersonal, institutional, community and societal levels affect substance abuse among university students. The study also uncovered loopholes in the policies, guidelines, and programme implementations in the prevention, control, and management of substance abuse at the university. Based on the findings, the researcher developed guidelines based on the findings of the study, the critical literature review, and the inputs from the experts who reviewed the guidelines. The researcher assumes that implementation of the guidelines will reduce substance use and substance abuse among university students.

***Key terms**:* Addictive substance, Perception, Substance Abuse, Substance use, Undergraduate Students,

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LIST OF ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ASH	Action on Smoking and Health
CDA	Central Drug Authority
CI	Confidence Interval
CSA	Central Statistical Agency
DALY	Disability Adjusted Life Years
DSM	Diagnostic and Statistical Manual of mental disorder
ECDD	Expert Committee on Drug Dependence
EDHS	Ethiopian Demographic and Health Survey
EU	European Union
FDCA	Federal Food, Drug, and Cosmetic Act
FDRE	Federal Democratic Republic of Ethiopia
EF	Expected Frequency
FMHACA	Food, Medicine and Health care Administration and Control Authority
GCDP	Global Commission on Drug Policy
GDP	Gross Domestic Product
HAPCO	HIV/AIDS Prevention and Control Office
HBV	Hepatitis-B Virus
HCV	Hepatitis-C Virus

HIV	Human Immunodeficiency Virus
ICC	International Criminal Court
ICF	International Coach Federation
I-CVI	Item-Content Validity Index
IDU	Intravenous Drug Users
INCB	International Narcotics Control Board
LSD	D-Lysergic Acid Diethylamide
NDDTC	National Drug Dependence Treatment Centre
NIDA	National Institute on Drug Abuse
OCAT	Ontario Campaign for Action on Tobacco
OF	Observed Frequency
ONDCP	Office of National Drug Control Policy
S-CVI	Scale- Content Validity Index
SPSS	Statistical Package for Social Sciences
SRD	Substance Related Disorder
SSA	Sub-Saharan Africa
STI	Sexually Transmitted Infections
TV	Television
UK	United Kingdom
UN	United Nations

UNDP	United Nations Development Programme
UNISA	University of South Africa
UNODC	United Nations Office on Drug and Crime
U.S.	United States
USA	United States of America
VCT	Voluntary Counselling and Testing
WACD	West Africa Commission on Drugs
WHO	World Health Organization

CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

The purpose of this study was to investigate substance abuse among undergraduate university students at one of the Universities in Ethiopia in order to develop guidelines for mitigating such practices. Substance abuse poses a great challenge in the world. Two hundred and forty three million which is about 5.2% of the world population abused illicit drugs in 2013. Of these, 10% were problem drug abusers (United Nations Development Programme [UNDP] 2015:15). The Office of National Drug Control Policy (ONDCP) (2014:7) of the United States of America (USA) states that the use of substances like marijuana is increasing among in-school youths because their harmful effects are no longer emphasised. Al'Absi, Khalil, Habori, Hoffman, Fujiwara and Wittmers (2013:99) indicate that substance abuse and its impact is dramatically increasing among youth in developing countries. Factors such as freedom from adults' supervision, psychological stressors related to the demand to adapt to new environment and academia, and making new friends pose university students at a greater risk of substance abuse (Bennett & Holloway 2014:454). Besides the health risks and economic losses at individual level, substance abuse poses great threat to social, economical, political, and security affairs of societies. This was evidently seen in a report by Beltrán and Garzón (2014:7) indicating that Cali, a city in the pacific side of Colombia, which is believed to be the pinnacle of illicit drug trade ladder in the region, suffer endemic violence with a murder rate of more than 70 per 100,000 inhabitants each year.

Intervention programmes to mitigate consequences of substance abuse are of diverse in nature designed by different professionals at different areas in different times. To mention some, Americans conduct a campaign which they call 'above the influence'-which denotes the power of young people living above the influence of addictive substances (ONDCP 2014:10). Investing at schools to prevent substance abuse has economical implication (ONDCP 2014:7). Every dollar invested in school-based substance abuse prevention has the potential to save up to 18 dollars in costs related to substance related disorders (ONDCP 2014:7).

While the current study investigates substance abuse among university students, this chapter presents an overview of the entire study that will be discussed under subsequent chapters. The chapter starts by discussing the background information about the research problem including the source of the research problem and background to the research problem. It briefly presents the objectives of the study, defining key terms, research methodology, and ethical considerations. The chapter then culminates by presenting the structures of the chapters of the study.

1.2 BACKGROUND INFORMATION ABOUT THE RESEARCH PROBLEM

The source of the research problem and background to the research problem are dealt with under the following two sections. While the source of the research problem presents how the researcher selected the problem, background to the research problem discusses the overview of the research problem.

1.2.1 The source of the research problem

The sources of a research problem vary depending on many factors including the researcher. According to Polit and Beck (2012:75), researchers being inquisitive about the research problem is one of the minimum requirements for a problem to be successfully studied. Researchers can develop inspiration on a specific research problem for variable reasons. A thoughtful observation based on their experience is one reason (Polit & Beck 2012:75). This researcher was inspired to study the selected problem due to three main reasons. One, the researcher has observed the consequences of substance abuse among undergraduate university students during his stay at a university in Ethiopia for his undergraduate study. The second reason emanated from findings of the researcher's previous research on risky sexual behaviours among undergraduate university students at the target University, Ethiopia. The findings of that study indicate that substance abuse among undergraduate university students in the study area is a pervasive problem that needs urgent action. The third reason was that the preliminary literature review made by the researcher before his final decision on the research topic shows that substance abuse among youths including university students is a worldwide problem that contributes to many health problems to millions of people, large economic loses, and many sorts of social disorders in many parts of the globe including Ethiopia.

1.2.2 Background to the research problem

Entering university is the beginning of new life for many youths. The transition from high school to university liberates many university students from their parental control (Deliens, Clarys, Bourdeaudhuij & Deforche 2014:8). The excitement and novelty when arriving at university make students go out more and test the university life (Deliens et al 2014:7). Researchers like Deliens et al (2014:8) and Wang, Chen, Tang, Lee and Jian (2011:362) add that factors, such as role models, family, peers, and friends affect the behaviour of university students. This in turn is followed by many health problems. For example, a study conducted in Amhara region, Ethiopia cited in Federal Human Immunodeficient Virus (HIV)/Acquired Immunodeficiency Syndrome (AIDS) Prevention and Control Office Federal Ministry of Health (2011:2) reported that 11% of university students tested HIV-positive which is high compared to the 2010 national HIV prevalence of 2.4% (Federal HIV/AIDS Prevention and Control Office Federal Ministry of Health 2011:2).

Substance abuse among young university students is a common problem in many countries. Generally, youths disproportionately use substance and get harmed from it compared to the general population (Mackert, Mabry, Hubbard, Grahovac & Steiker 2014:274). Substance abuse such as alcohol consumption, cannabis use, and drug addiction are common in university students (Young, Seewyc, Boak, Jahrig, Anderson, Doiron, Taylor, Pica, Laprise & Clark 2011:1). According to Young et al (2011:1), the prevalence of alcohol abuse is 46-62% and the prevalence of cannabis abuse is 17-32% in Canadian students. Many other studies reported that university students are exposed to substance abuse. To mention some, about 20% of university students in USA consume alcohol mixed energy drinks regularly while marijuana, ecstasy, and cocaine abuse is also common in those who consume alcohol mixed energy drinks (Snipes & Benotsch 2013:1420). In Russia, 20% of university students abuse drugs that are not prescribed by doctors (Tsvetkova & Antonova 2013:89).

Besides the challenge for academic progress, substance abuse poses great problems for the health of the students and the community at large. Consistent with this view, the University of Vermont (2014:6) and Young et al (2011:1) assert that substance abuse negatively impacts the health of students. Malaju and Asale

(2013:5) also claim that alcohol abusers were about six times more likely to be infected with HIV than their counterparts. The same study reported that youths who abuse khat are seven times more likely to initiate sexual intercourse earlier than their counterparts. The study by Malaju and Asale (2013:5) also revealed that khat abuse (33.3%) and alcohol abuse (50%) is higher in youths with HIV than their counterparts. According to Malaju and Asale (2013:6), khat chewers enter into a state of mind called hypomanic phase which is characterised by impaired judgement. Moreover, Wells, Kelly, Golub, Grov and Parsons (2013:44) presume that binge drinking permit impermissible behaviour such as risky sexual practices. Wells et al (2013:41) also reported that many university youths have sex under the influence of alcohol at night clubs. On average, men visit night clubs and engage in risky sexual behaviours following binge drinking compared to women (Hittner & Kryzanowski 2010:638; Malaju & Asale 2013:44).

Substance abuse among Ethiopian youths is an emerging risky behaviour. Many studies have indicated that the same problem applies to Ethiopian university students. For instance, 24.6% of sexually active students at Bahir Dar University were khat chewers (Mulu, Yimer & Abera 2014:4). Prevalence of life time alcohol abuse was 31% in medical students at Addis Ababa University (Deressa & Azazh 2011:4). The same study revealed that life time khat abuse was 14% in the medical students while male students (18%) were higher in khat chewing compared to female students (6%). Kassa and Deyno (2014:4) reported that drinking alcohol, smoking cigarette, and chewing khat were extremely high among students at Hawassa University, Ethiopia. Substance abuse among university students in Ethiopia is followed by health problems such as higher HIV infection and mental health problems (Malaju & Asale 2013:5-6).

1.3 STATEMENT OF THE RESEARCH PROBLEM

Substance abuse among Ethiopian university students is a major problem. The prevalence of substance abuse among undergraduate students at Axum University, Ethiopia in 2012 was reported to be 44.8% (Gebreslassie, Feleke & Melese 2013:4). The life time and last 12 months prevalence of substance abuse among students at Hawassa University, Ethiopia was 53.6% and 45.7% respectively (Kassa, Taddesse & Yilma 2014:3). Kassa and Deyno (2014:4) also

reported that substance abuse was higher among university students who live far from families than their counterparts. Substance abuse among university students is associated with negative health impacts such as high prevalence of HIV infection (Malaju & Asale 2013:5). The high prevalence of substance abuse is happening regardless of the universities' and countries' rules, regulations and policies to prevent substance abuse. This made the researcher realise that there might be some loopholes in the implementation of the existing regulations. Thus this study which focus on investigating substance abuse among students in one of the universities in Ethiopia in order to develop guidelines to mitigate the burden of substance abuse among university students in Ethiopia. The researcher believes that the developed guidelines will assist in the reduction of substance abuse among the university students in Ethiopia.

1.4 RESEARCH PURPOSE

The purpose of this study was to investigate substance abuse among undergraduate university students at the target University and develop guidelines for mitigating such practices.

1.5 RESEARCH OBJECTIVES

The objectives of this study were to:

- Identify the prevalence of substance abuse among undergraduate students at the target University.
- Explore the relationship between substance abuse and some of the components of Social Ecological Model.
- Determine the views of students' service providers and administrative officers at the target University on substance abuse among undergraduate students at the target University.
- Determine the views of students' service providers and administrative officers at the target University on determinant factors of substance abuse among undergraduate students at the target University.

- Explore the views of students' service providers and administrative officers at the target University on how to reduce the burden of substance abuse among undergraduate students at the target University.
- Develop guidelines for mitigating the burden of substance abuse among undergraduate students in Ethiopia.

1.6 RESEARCH QUESTIONS

- What is the prevalence of substance abuse among undergraduate students at the target University?
- What is the relationship between substance abuse and some of the components of Social Ecological Model?
- What are the views of students' service providers and administrative officers at the target University on substance abuse among undergraduate students at the target University?
- What are the views of students' service providers and administrative officers at the target University on determinant factors of substance abuse among undergraduate students at the target University?
- What are the possible guidelines for mitigating the burden of substance abuse among undergraduate students?

1.7 THEORETICAL FRAMEWORK OF THE STUDY

The meta-theoretical ground for this study was the Social Ecological Model which was developed in 1988 by McLeroy, Bibeau, Steckler, and Glanz based on Urie Brofenbrenner's multilevel framework (Golden & Earp 2012:1). According to this model (Winch 2012:6), behaviour is affected by multiple levels of influence including intrapersonal, interpersonal, institutional, community, and societal factors. The researcher chose this model because it holds important concepts that could determine substance abuse among undergraduate students at the target University. The researcher assumed that substance abuse among university students are attributable to personal factors, interpersonal relationship with friends, and the environment at large. The model guided the researcher in his endeavour of organising the study including reviewing the existing literature, designing the

questionnaire, analysing, and interpreting the data (Polit & Beck 2012:143). The details of the components of the model are presented in chapter 2.

1.8 DEFINITIONS OF KEY CONCEPTS

Addictive substance: according to Keane, Reaper-Reynolds, Williams and Wolfe ([Sa]:7-8), addictive substance is any substance which changes the way the body functions mentally, physically, or emotionally. This definition does not discriminate between alcohol, tobacco, caffeine, solvents, other over the counter drugs, prescribed drugs, and illicit drugs (Keane et al [Sa]:7-8). For this study, addictive substances include alcohol and khat in addition to other substances.

Perception: ‘‘immediate or intuitive recognition or appreciation as of moral, psychological, or aesthetic qualities, insight, intuition, discernment’’ (Online dictionary). For this study, perception refers to the intuitive recognition of consequences of substance abuse by undergraduate university students.

Substance Abuse: ‘‘substance abuse has been defined as an excessive use of addictive substances, especially when such consumption or misuse of a substance is not for therapeutic purposes but rather for the purpose of altering the normal functioning of the mind and body.’’ (Abikoye, Sholarin & Adekoya 2014:55). For this study, substance abuse refers to any excessive use of addictive excluding uses for therapeutic purposes.

Substance use: substance use is a broad term that covers taking of all substances within which there are stages such as: substance free-that is non-use, experimental use, recreational use, and harmful use (Keane et al [Sa]:8). For this study, substance use refers to any non-excessive use of addictive substances.

Undergraduate Students: undergraduate students can briefly be described as students who study diplomas and degrees (Council on Higher Education 2013:5). In the context of Ethiopian public universities, undergraduate students are students who study first degree.

1.9 OPERATIONAL DEFINITIONS OF KEY CONCEPTS

Close people: for this study, students' close people includes: father, mother, sister, brother, close relatives, and friends. Substance abuse among students' close people was measured using a question as part of self-administered questionnaire.

Consequences of substance abuse: for this study, consequences of substance abuse refers to problems related to substance abuse including mental and physical illnesses, social problems that include problem with relationship with family members and relatives, legal consequences including being incarcerations due to substance abuse or substance trafficking, and economical problems due to the cost of the substances. Consequences of substance abuse were measured using a multiple choice question as part of self-administered questionnaire.

Ease of access: for this study, ease of access to addictive substances to students sought if addictive substances were easily accessible to students and was measured using a multiple choice question as part of self-administered questionnaire.

Undergraduate students: for this study, 'undergraduate students' refers to students who attend undergraduate study at the target University in the year of data collection at day time from September to June as of Ethiopian regular academic period.

Perception: for this study, students' perception towards substance abuse sought the perception of students towards using substances for recreational purpose and the consequences of substance abuse. Students' perception towards substance abuse was measured using a question as part of self-administered questionnaire.

Substance abuse: for this study, substance abuse among undergraduate students at the target University was measured using a series of questions as part of self-administered questionnaire.

1.10 RESEARCH METHODOLOGY

The research methodology followed in this study is discussed in detail in chapter 3. This section only briefly presents the main summaries of core aspects of the research methodology followed.

1.10.1 The research approach

The researcher used a mixed method approach. Creswell and Plano-Clark (2011:1) and Maree (2010:262) claim that mixed methods research is a third approach to research following quantitative and qualitative methods. Creswell and Plano-Clark (2011:2) add that mixed methods research is a research design that includes quantitative and qualitative research where neither type of method is inherently linked to any particular inquiry paradigm.

Combining quantitative and qualitative strands in a study ensures the breadth and depth of understanding and corroboration of the research problem (Creswell & Plano Clark 2011:4; Maree 2010:261-262; Plano-Clark & Creswell 2010:299). Moreover, combining quantitative and qualitative research strands is helpful to offset the limitations of each strand. It is for the aforementioned merit that the researcher has chosen mixed methods approach for this study.

1.10.2 Research design

The researcher used a convergent parallel mixed methods design. The quantitative and qualitative data was collected concurrently, analysed separately, and mixed during the overall interpretation of results and conclusion. The collection of both types of data at roughly the same time helped the researcher to manage his time efficiently (Creswell & Plano-Clark 2011:78).

1.10.3 Research procedures

The detailed sampling, data collection, data analysis, and interpretation procedures of the quantitative and qualitative strands of the study is discussed in chapter 3 and this section only highlights the overview of the procedures as follows.

1.10.3.1 Data collection procedures

For the quantitative part of the study, data was collected using a standardised self-administered questionnaire. The quantitative data was collected from randomly selected undergraduate students who were in graduating class during the data collection period at the target University. For the qualitative part, data was collected

using an in-depth face-to-face interview. The participants of the qualitative part of the study were purposefully selected students' service providers. The participants include experts in the field of mental health, administrative officers at the target University, and students' representatives of the target University.

1.10.3.2 Data analysis procedures

For the quantitative data, descriptive statistics such as means and proportions were used to show the prevalence of substance abuse among undergraduate students at the target University. The researcher also applied the chi-square test for independence to indicate the association between the variables in the Social Ecological Model and substance abuse among the students. The audiotaped qualitative data was transcribed verbatim into word texts. The qualitative data analysis resulted into themes and sub-themes that were aligned with the components of the Social Ecological Model. The researcher used a software know as Statistical Package for Social Sciences (SPSS) for data analysis as described in detail in chapter 3.

1.10.3.3 Data and design quality

While the quality of quantitative data is measured by its reliability and validity, the quality of qualitative data is measured using the terms such as: credibility, dependability, confirmability, and transferability. The researcher employed techniques that can enhance the quality of the qualitative data as described in detail in chapter 3.

1.11 ETHICAL CONSIDERATIONS

Ethical practices in research require respect for individual participants and institutions (Plano-Clark & Creswell 2010:191). To ensure anonymity, respondents were informed not to write their identity in the questionnaires and put the completed questionnaires in the sealed boxes. The researcher made efforts to comply with the ethical principles and rules as discussed in chapter 3.

1.12 SIGNIFICANCE OF THE STUDY

The research developed guidelines for mitigating the burden of substance abuse among university students. This will assist in health programme design and implementation in universities. Studying substance abuse among university students provides important clues regarding the health behaviours of the youth in the country. What is more, higher institutions including universities where many youths can be accessed easily and economically are important entry points for implementing youth based prevention programmes (Tsvetkova & Antonova 2013:87). The prospective students of the university will also benefit following the interventions that may be initiated based on the guidelines developed in this study. This will in turn result in productive graduates with healthy life style which can benefit themselves and the society at large in the long run. Finally, the study has revealed the trends and associated factors of substance abuse that can be used as baseline information for future studies and programme design.

1.13 SCOPE THE STUDY

This study investigated substance abuse among university students at one of the universities in Ethiopia. The quantitative data was collected from randomly selected undergraduate students at the target University who were in graduating class in the academic year of 2016 while the qualitative data was collected from mental health experts at the target Hospital, Jigjiga, administrative officers at the target University, and students' representatives of the target University. Data was collected during April to August 2016.

1.14 STRUCTURE OF THE THESIS

Chapter 1 presents an overview of the study including introduction, background of the problem, statement of the problem, objectives of the study, definitions of key concepts, research methodology, ethical considerations, scope, and limitations of the study. Most of the points briefed in chapter one are discussed in detail in the subsequent chapters.

Chapter 2 presents the literature review of the study. The main aspects of substance abuse are discussed giving special emphasis to substance abuse among university students. Aspects related to determinant factors and prevention strategies of substance abuse are presented based on the theoretical framework of the study.

Chapter 3 provides the detailed description of the research methodology that was briefly highlighted in chapter 1. This chapter further discusses the ethical considerations followed in the study in detail.

Chapter 4 presents the results and discussion of the findings of the quantitative part of the study. The chapter presents the findings both descriptively and analytically seeking the association between the components of Social Ecological Model and substance abuse.

Chapter 5 provides the presentation and discussion of the findings of the qualitative part of the study. The theoretical framework of the study also guided the interpretation and discussion of the findings in this chapter.

Chapter 6 presents the overall interpretation and conclusions from the findings of the study. The research findings from both the quantitative and qualitative parts of the study are mixed and interpreted concurrently in this chapter.

Chapter 7 addresses one of the objectives of the study- that is designing guidelines for mitigating the burden of substance abuse among undergraduate university students. The chapter provides guidelines and recommendations based on the findings of the study and study conclusion

1.15 CONCLUSION

This chapter presented the overview and introduction of the study. The background information about the research problem, the statement of the problem, the objectives, and research methodology followed in the study were discussed under relevant headings and sub-headings. The ethical considerations, the scope, and limitation of the study were also briefed in this chapter. The next chapter will present the literature review of the study.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The previous chapter presented an overview of the thesis. This chapter provides a detail description of the review of literature on substance abuse. Literature review helps to familiarise researchers with existing information in the problem of interest. Through thorough literature review, researchers can determine how best their research can contribute to the existing information (Polit & Beck 2012:95). It is with this sense that the researcher has conducted the literature review.

This chapter presents the scope of literature review, the strategy used for searching the literature reviewed, appraisal of existing literature and the results of literature review. The review focuses on aspects of substance abuse among youths paying special attention to university students. The historical overview of substance abuse, the prevalence and consequences of substance abuse, the determinants and possible remedies to prevent substance abuse are discussed under subsequent headings of the chapter.

2.2 SCOPE OF LITERATURE REVIEW

A thorough critical literature review is an indispensible part of a thesis (Polit & Beck 2012:95). Polit and Beck (2012:96) mention that literature review must be comprehensive, thorough and up-to-date. Moreover, becoming an expert in the selected topic is mandatory for a researcher, which can only be achieved through thorough literature review (Polit & Beck 2012:96). In this study, the researcher has gone through the processes of critical literature review in order to develop expert knowledge on substance use.

The review of literature in this study has covered the most important aspects of substance abuse among in-school youths paying special attention to university students. The prevalence and the consequences of substance abuse among university students were assessed thoroughly. Literature reviewed also included a discussion on the Social Ecological Model, which was used as conceptual framework

of the study. The determinant factors of substance abuse at individual, interpersonal, institutional, community, and society levels were discussed under subsequent headings in line with the components of the model. The review also included the possible interventions that may be instituted to reduce the burden of substance abuse under each component of the Social Ecological Model. Under the determinant factors and interventions at societal level, the experiences of selected countries have been discussed.

2.3 SEARCH STRATEGY

While searching for relevant literatures, the researcher mainly used data bases in the online library of UNISA. Widely used data bases include 'CINAHL'. 'EBSCO host', and 'Sabinet'. The researcher also used the World Health Organization (WHO)'s data base, 'HINARI', Google scholar, Google search engine, and websites of different organisations.

To make literature review as comprehensive as possible, many key words were used while searching for literatures. Mostly used key words include substance abuse, the prevalence of substance abuse, substance abuse among youths, substance abuse among university students, consequences of substance abuse, addiction, and substance control policies. The researcher then used an inclusion and exclusion criteria to determine whether an identified literature needs to be included or excluded in the review.

2.3.1 Inclusion criteria

The following inclusion criteria were used:

- Studies published from the year 2005 to 2017.
- Studies published in English.
- Studies that present the prevalence of substance abuse among youths.
- Studies that present the prevalence of substance abuse among university students.
- Studies that present the consequences of substance abuse.

- Studies that present the intervention options to mitigate the burden of substance abuse.

2.3.2 Exclusion criteria

The following exclusion criteria were used:

- Studies that were published in languages other than English.
- Studies that were published before the year 2005.
- Studies that lack standard authority, accuracy, and objectivity as verified based on their authors' credibility, presence of errors in grammar and referencing, and presences of advertising that may lead to bias in the content of the paper.
- Studies that do not present the prevalence of substance abuse among youths.
- Studies that do not present the prevalence of substance abuse among university students.
- Studies that do not present the consequences of substance abuse.
- Studies that do not present the intervention options to mitigate the burden of substance abuse.

2.4 APPRAISAL OF IDENTIFIED STUDIES

Once the literatures were appraised using the aforementioned criteria, articles and documents that fulfilled the inclusion criteria were sorted to be included. Literatures that were in congruent to the exclusion criteria were excluded from the review. Research articles, books, legislations and policy documents that met the inclusion criteria were then coded based on their contents and dates of the search made and sorted out under separate folder for ease of retrieval.

The researcher has critically read and re-read each of the included literature to get acquainted with the content and the methodology used in the literature. A matrix of spreadsheet was used for extracting information from the body of literature in a systematic way (Polit & Beck 2012:108). The matrix was developed using separate sheets for the key concepts based on the Social Ecological Model which is used as a conceptual framework of the study. Therefore, each component of the model was given a separate sheet where the contents of literature relevant to the specific

component were copied. Moreover, the matrix had a space for additional concepts such as methodologies followed in the literature, limitations of the reviewed literature and relevant bibliographies that need to be further searched. This process of appraisal of literature led to the arrangements of literature into pre-set themes in relation to substance abuse according to the different elements of the Social Ecological Model. The themes are as follows:

- Dimensions of substance abuse at intrapersonal level
- Dimensions of substance abuse at interpersonal level
- Dimensions of substance abuse at institutional level
- Dimensions of substance abuse at community level
- Dimensions of substance abuse at society level

In order to understand these themes, the researcher will start by discussing the Social Ecological Model which is the theoretical framework for this study.

2.4.1 Social Ecological Model

The meta-theoretical ground for this study is the Social Ecological Model. According to this model, behaviour is affected by multiple levels of influence including intrapersonal, interpersonal, institutional, community and societal factors (Winch 2012:6, 9). McLeroy 1988 cited in Winch (2012:10), describes these factors as follows:

- *Intrapersonal factor*s: These relate to individual characteristics that influence behaviour. These characteristics are knowledge, skill and self-efficacy.
- *Interpersonal factors*: These factors refer to interpersonal process and groups which provide identity and support to an individual. They include people who are closely linked to a person such as families, friends and peers.
- *Institutional factors*: These are factors at institutional level such as rules, regulations, policies and structures that constrain or promote behaviours.
- *Community factors*: These are factors at community level such as community norms and social networks.

- *Societal factors*: These are factors at public policy level which include policies and laws that regulate or support health and other social practices at local, regional and federal level.

All these levels of influences are presented diagrammatically in figure 2.1

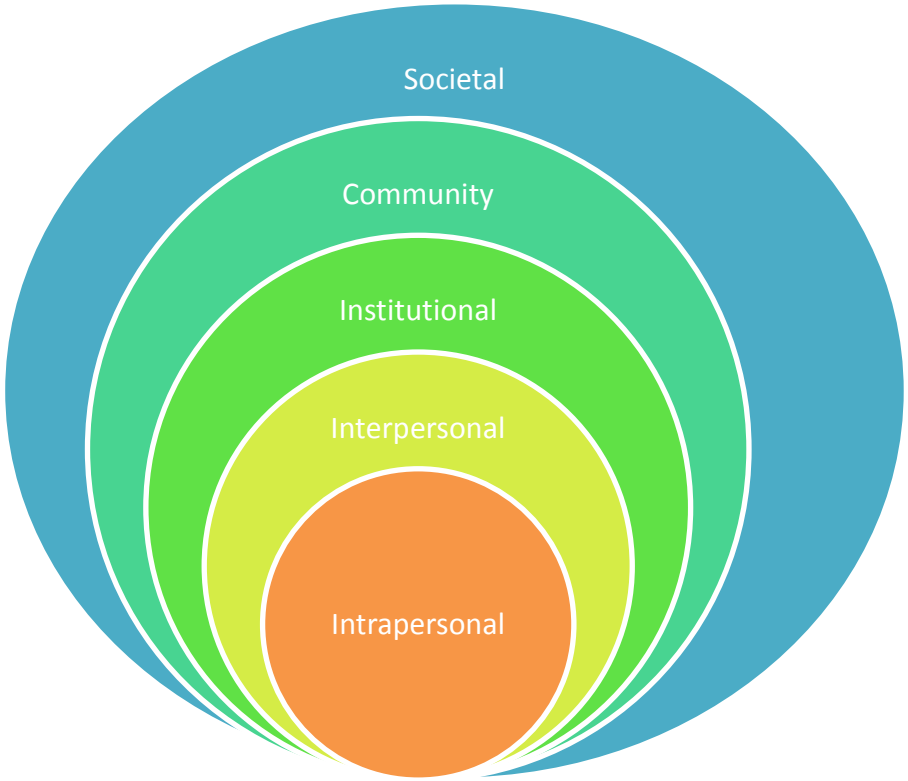

Figure 2.1 Social Ecological Model (adapted from Gillen, Lich, Yeatts, Hernandez, Smith & Lewis 2014:65).

The components of the Social Ecological Model as applied to determinant factors of substance abuse among university students and the subsequent intervention strategies thereof are presented in the following sections of this chapter.

2.4.1.1 Dimensions at intrapersonal level

This section presents the different factors and intervention options that are important at intrapersonal level according to the Social Ecological Model.

2.4.1.1.1 Determinant factors at intrapersonal level

Many factors including biological, psychological, spiritual and emotional characteristics determine health behaviours at individual level. In support of this,

studies conducted by Hsiao, Chien, Wu, Chiang and Huang (2010:1617) and Javier, Belgrave, Hill and Richardson (2013:229) on nursing school students in Taiwan and university students in USA respectively report that students with better spiritual health had better mental health and were more likely to engage in health promoting behaviours. According to the modified Social Stress Model, the more a person has risk factors, the more likely the person is to begin and continue with substance abuse; and the more a person has protective factors, the less likely the person is to become involved in substance abuse (WHO [Sa]:27). According to National Institute on Drug Abuse (NIDA) (2014:14), genetic factors influence psychological development that may put individuals at risk of substance abuse.

Evidences show that intrapersonal factors are important determinants of substance abuse among individuals. A study conducted by Glozah, Adu and Komesuor (2015:1) on Iranian university students mentions that one of the determinants of health behaviour at individual level is self-efficacy. Individual traits such as novelty seeking make students engage in substance abuse (Bannink, Broeren, Heydelberg, Klooster & Raat 2015:6). In the United States (U.S.) Hookah tobacco smoker university students engage in novelty seeking impulse behaviours and have proclivity of non-adherence to societal norms (Gathuru, Tarter & Klein-Fedyshin 2015:274). Students who lived alone during school age were found more than 10 times more likely to be at risk of substance abuse compared with those who lived with their families (Kassa et al 2014:4). Literature reviewed highlighted how intrapersonal factor such as risk perception, gender, age and mental health determine the likelihood of a person to abuse substance.

Risk perception as intrapersonal factor

Individuals differ with regard to their ability of risk perception and analysis, and this is an important intrapersonal factor in substance abuse. Consistent with this view, Beck, Legleye, Chomynova and Miller (2014:878) state that perceived risk on substance abuse poses a significant problem in the field of public health. People with the perception that substance abuse is dangerous abuse substances less frequently compared to their counterparts (Jurcik, Moulding & Naujokaitis 2013:259). On the other hand, individuals who are more attracted towards risky behaviours are more likely to be involved in substance abuse (Salameh, Salame, Waked, Barbour, Zeidan

& Baldi 2014:289). Moreover, students who perceive low risk related to substance abuse were reported 1.73 times more likely to abuse substance as compared to those who perceive substance abuse as high risk behaviour (Birhanu, Bisetegn & Woldeyohannes 2014:5). Salameh et al (2014:286) also argue that individuals with more risk perception tendency are less likely to involve with risky behaviours including substance abuse. Fischer, Ivsins, Rehm, Webster, Rudzinski, Rodopoulos and Patra (2014:191-192) account that students who perceive that cannabis cannot impair their driving ability usually engage in driving the cars after using cannabis compared to those who perceive that cannabis can impair their driving ability. Beck et al (2014:888) also reports that a lower perceived risk could lead to higher frequency of substance abuse among students. Another intrapersonal factor which plays a major role in determining substance abuse is gender.

Gender as intrapersonal factor

Beck et al (2014:889) conclude that gender is an important factor regarding risk perception and substance abuse. Cannabis abuse in male students was reported in several literatures compared to female students. A study conducted on Canadian students indicates that tobacco smoker males were more likely to also abuse cannabis compared to their female counterparts (Webster et al 2014:157). Verhagen, Uitenbroek, Schreuders, Messaoudi and Kroon (2015:7) indicate that the prevalence of drinking alcohol and cannabis abuse among Dutch male students was higher than their female counterparts.

Gender disparity regarding other substances abuse is reported in several literatures indicating that females consume substance less than their male counterparts. Becker et al (2012:5), Lemelin, Lussier, Sabourin, Brassard and Naud (2014:191) and Webster, Chaiton and Kirst (2014:157) indicate that substance abuse among females is less compared to their male counterparts. Amphetamine abuse among male university students in USA was higher (7.2%) than among women (4.8%) counterparts (Becker, Perry & Westenbroek 2012:5). Another study conducted by Maier, Liechti, Herzig and Schaub (2013:4-5) also indicates that male university students in Switzerland abuse methylphenidate, a neuro-enhancer drug, more (3.1%) than female (1.5%) counterparts. The study conducted by Goreishi and Shajari (2013:68) on Iranian university students account that of the 40.3% substance

abusers, 56% were males while the remaining 44% being female students. A study conducted by Salameh, Jomaa, Issa, Farhat, Zeghondi, Gerges, Sabbagh, Chaaya, Barbour, Waked, Salamé, Saadallah-Zeidan and Baldi (2014:206) on Lebanese public and private university students revealed that toxic substance consumption was significantly higher among males compared to females. In their cluster analysis on American students, Primack, Kim, Shensa, Sidani, Barnett and Switzer (2012:377) found that smoking cigarette was higher (61%) in clusters with the highest number of males than in clusters with the highest number of females (28%). In this analysis, compared to females, males had an odds ratio of 4.19 (95% CI 3.37-4.43) to be smokers (Primack et al 2012:381). A study conducted on Rwandan youths regarding substance abuse also showed that substance abuse among males (67.03%) was more than that of females (36.92%) (Kanyoni, Gishoma & Ndahindwa 2015:4).

Substance abuse among Ethiopian students also show large gender based variation. The study by Tilahun and Ayele (2013:6) on Voluntary Counselling and Testing (VCT) visitor youths in Gamo Gofa reveals that men were 2.9 times more likely to chew khat than women. Male students at Harar town were reported to chew khat two times more than their female counterparts (Reda, Moges, Biadgilign & Wondmagegn 2012:3). The prevalence of substance abuse among men students at Worota town was 66% compared to 34% among their women counter parts (Birhanu et al 2014:4). The study at Hawassa University reveals that the prevalence of substance abuse among men students outnumbered women students by three fold (Kassa et al 2014:4). Gebrehanna, Berhane and Worku (2014:6) also report that male students at Bahir Dar University were three times more likely to chew khat than female students. Another study at Jimma, Ethiopia revealed that prevalence of chewing khat in men is 30% compared to only 3% in women counterparts (Mains, Hadley & Tessema 2013:118). Male students at Ambo University also reported higher prevalence of chewing khat than female counterparts (Nigussie, Gobena & Mossie 2013:125).

However, literatures indicate that the prevalence of abuse of some substances and/or in some areas is similar in both genders. Rozenbroek and Rothstein (2011:360-361) claim that there was no significant difference in prescription substance abuse between men and women students in USA. A study on Yemeni

students also revealed that there was no significant difference in khat chewing between male and female students (Hoffman & Al'absi 2013:1858). Moreover, Becker et al (2012:3) indicate that women in England were using as much alcohol as men in 1700s.

Not only the prevalence of substance abuse differs between males and females, but also the reasons for abusing substances are different. In a study conducted by Lee, Loke, Wu and Ho (2010:1467) on students in Hong-Kong, girls were slightly more likely to avoid problem behaviours with regard to substance abuse than boys (Lee et al 2010:1467-1468). According to Becker et al (2012:5, 6), while men abuse substances for enhancing social activities, social conditions such as stress, anxiety, and unemployment push women towards substance abuse. Becker and his colleagues present an argument regarding the gender difference in substance abuse. According to Becker et al (2012:1), the way the neural system in the brain are organised to bring addiction is different in men and women. While analysing the biological difference between men and women with regard to substance abuse, Becker et al (2012:7) indicate that women experience a reduced negative affect during follicular phase of their hormonal cycle and this leads to less substance abuse. On the same way, androgen secretion in men affects the substance abuse pattern (Becker et al 2012:7). Becker et al (2012:2-3) further accentuate that men are more likely to engage in risk taking behaviours including experimentation with addictive substances. Moreover, childhood abuse predisposes to substance abuse during adulthood in women but not in men (Becker et al 2012:6). But Salameh et al (2014:286) argue that females perceive substance abuse risk more than males.

However, the current reports of higher prevalence of substance abuse among men than women may be attributed to societal norms rather than biological traits. Reports included in Sorsdahl, Stein and Myers 2012 (2012:6-7) and Becker et al (2012:4) indicate that substance abuse among women is negatively perceived by many societies across the world compared to men. Becker et al (2012:4) further claim that when society is permissive, women are more affected by substance abuse than men. For example, in 1800s, women in USA were more prone to opiate abuse than men (Becker et al 2012:4). In Ethiopia, while khat is mainly chewed by men, Berhanu, Go, Ruff, Celentano and Bishaw (2012:1201) explain that women in Addis

Ababa, who returned from Saudi Arabia, where khat and shisha abuse is rooted in the culture of the community, are observed to come back with the habit of khat chewing.

Age as intrapersonal factor

Age is an important demographic factor in many health related behaviours including substance abuse. Young university students go through physical, psychological, and social changes which predispose them to be involved in substance experimentation (NIDA 2014:3; WHO [Sa]:30). National Institute on Drug Abuse (2014:13) further notes that the euphoria created by the substance interaction with neuro-chemicals in the brain, motivates young students to abuse substances. Respondents aged 20 years and above in a study by Rozenbroek and Rothstein (2011:361) were slightly more likely than younger respondents to use prescribed substances. Moreover, the risk of substance abuse among vocational education students in Netherlands was found to increase with their ages (Bannink et al 2015:6).

Mental health as intrapersonal factor

Stress and other mental health conditions could affect substance abuse among university students. Stress can be defined as the body's response to any unpleasant situation that prepares the body to take action as a total response to environmental demands (Lin & Yusoff 2013:672). Lin and Yusoff (2013:672) describe two types of coping strategy for stress: the first one is problem focused, which aims at amending the causes of the stress, and the second one is emotion-focused which aims at getting the affective effects of the hassle. According to Lin and Yusoff (2013:673), individuals who use problem-focused coping mechanism are prone to substance abuse more than those who use emotion-focused. Depressive symptoms are common among youths contributing to risky behaviours including substance abuse (Bannink et al 2015:2). Trunzo, Samter, Morse, McClure, Kohn, Volkman and O'Brien (2014:400) add that students who are impulsive and avoidant are more vulnerable to substance abuse than the confronted ones. Maier et al (2013:7) maintain that students with pressure such as academic work and family were at higher odds of substance abuse.

According to Becker et al (2012:5) and NIDA (2014:16), mental conditions such as stress, anxiety, and depression are important predisposing factors for substance abuse. Becker et al (2012:5) further revealed that 30-41% of individuals with life time substance abuse suffer from at least one mood and anxiety disorder. Anxiety as a cause of substance abuse was seen in a study conducted by Chavez-Palacios, Graf and Blanco (2012:14). Another study indicates that psychological distress is associated with prescription opioid non-medical abuse among U.S. students (Fischer, Ialomiteanu, Boak, Adlaf, Rehm & Mann 2013:279). In a study conducted by Kelly and Chan (2015:790) on Australian students, 27.21% of substance abusers were at risk of psychological distress compared to only 11.39% in non-abusers. To the contrary, Goreishi and Shajari (2013:68) found that the prevalence of substance abuse among students with no history of psychological disorder was more (33.2%) than in those with history of psychological problem (22.7%). Chavez-Palacios et al (2012:14) also report that about 44.1% of Mexican-American respondents believe that cannabis abuse is an effective coping mechanism of individuals with anxiety.

2.4.1.1.2 Consequences of substance abuse at intrapersonal level

A number of side effects of substance abuse are reported. Millions of people suffer health problems and millions of others die each year as a result of substance abuse (Kassa et al 2014:1). Substance abuse is associated with loss of about 20 million of global Disability Adjusted Life Years (DALY) and the abuse of legal substances such as alcohol contributes to another 17.6 million DALY (Khoo & Brown 2014:713). Moreover, while smoking causes around 5 million annual deaths worldwide, alcohol causes about 2.5 million deaths each year (Verhagen et al 2015:1). Any substance can result in varying degree of damage to human health. The damage may be of short term such as death following overdose or of long term such as addiction and damage the internal organs. The extent and the type of damage vary depending on the type of substance, the dose, and method of using the substance (WHO [Sa]:8).

The risk to contracting or transmitting HIV

Substance abuse drives the epidemic of HIV in two ways. The first one is injectable addictive substances which significantly contribute to the spread of HIV through contaminated needles. According to CDA (2013:44), about 15.9 million people abuse

injectable substances worldwide while about 3 million of them are infected with HIV. The spread of HIV in most parts of Asia, America, and Europe is believed to be due to injectable addictive substances (CDA 2013:44). Outside Sub-Saharan Africa (SSA), about 30% of HIV infections occurs among people who abuse injectable substances (UNDP 2015:15). Injectable substances also put people at higher risk of getting Hepatitis-B Virus (HBV) and Hepatitis-C Virus (HCV) (UNDP 2015:15).

The second way is that substance abuse hinders individuals' ability to protect themselves against unsafe sex. The abuse of substances such as alcohol and cocaine for the purpose of sexual sensation enhancement impairs the consideration of contraception and Sexually Transmitted Infections (STI) prevention (Ghandour, Mouhanna, Yasmine, Kak 2014:4). According to Lemelin et al (2014:191) and Mulu et al (2014:2), substance abuse exposes individuals to risky sexual behaviours including unprotected sex. This is especially worrisome when a considerable number of university students abuse substance before sexual activities. Six percent of students at Hawassa University reported that they have been engaged in unprotected sex following substance abuse (Kassa et al 2014:4). A study conducted on Jigjiga University students revealed that 8.2% of respondents were drunk and 10.9% chewed khat during their last sexual engagement (Mavhandu-Mudzusi & Asgedom 2016:182).

Substance related disorders

There are different types of substance related disorders, and some of which are discussed here. The Diagnostic and Statistical Manual of mental disorder-5 (DSM-5) uses a separate use disorder such as alcohol use disorder, stimulant use disorder etc (The American Psychiatric Association 2013:1). Nevertheless, the first DSM included the category of addiction, and DSM-IV used the term Substance Related Disorder (SRD) (Straussner 2013:449). Substance related disorder includes 10 disorders which range from substance intoxication to substance induced mental problems such as mood disorder, anxiety, psychotic or sleeping disorder (Straussner 2013:450). In 2013, the DSM was updated to DSM-5 and the term substance related disorder changed to substance related and addictive disorder as part of the changes made to the manual (Straussner 2013:450-451).

Intoxication

Intoxication is a temporary state following substance abuse resulting in changing the person's thinking, perception, judgement, and emotion (WHO [Sa]:20). Intoxicated people usually involve in violence, unprotected sex and rape (WHO [Sa]:20). An intoxicated person can also suffer from poising, overdose, seizure, and sudden death (WHO [Sa]:20). Substance overdose, especially of opioids including heroin is the main cause of substance related deaths (UNDP 2015:15). Werb (2013:1217) cites the report of United Nation Office on Drug and Crime (UNODC) that shows an estimated 99,000-253,000 individuals died of a substance overdose only in 2010.

Dependence and Addiction

Mental health problem is one of the main consequences of substance abuse. In their study of Iranian undergraduate university students, Zivari-Rahman, Lesani and Shokouhi-Moqaddam (2012:39) accentuate that the mental health of substance abusers was less than those who do not abuse drugs. Addiction and dependence are critical consequences of substance-related mental disorder. Central Drug Authority (2013:20) particularly defines substance abuse problem as ‘‘all types of dependence forming substance’’ including alcohol, illicit drugs, over-the-counter medications and prescribed drugs. Dependence is a strong desire to take a substance and lack of control over taking the substance (WHO [Sa]:21). Becker et al (2012:5) also mention the criteria for dependence as tolerance, symptoms of withdrawal, escalation in intake, unsuccessful efforts to control substance abuse, spending more time in activities to obtain substances, and continuing substance abuse despite adverse consequences.

Addiction is a compulsive craving of substances and exacerbation of dysphoria with substance withdrawal (Becker et al 2012:1). Addiction starts with the euphoria of the first substance abuse which in turn will later be replaced with dysphoria in the absence of the substance (Becker et al 2012:1). Many people initially take illicit substances for re-enforcing euphoria, energy, focus, or sexual enhancement and end up in the development of addiction (Becker et al 2012:1). When people are exposed to substances for an extended period of time, they fall at the risk of developing a broad spectrum of neural adaptations within reward pathways which

lead to addiction (Merrer, Befort, Gardon, Filliol, Darcq, Dembele, Becker & Kieffer 2011:1).

Addiction is a major health problem in many parts of the world (Lee 2014:67). According to Lee (2014:71), addiction needs great attention for its high incidence in societies, its impacts on life in many ways, and its co-morbidity with mental health. The management of addiction disorder urges for the development of new therapeutic drugs (Khoo & Brown 2014:713-714). Recovery from addiction is the process of engaging in activities that promote sobriety and overall wellness and this takes time for addicted students (Terrion 2012:4).

2.4.1.1.3 Interventions at intrapersonal level

As there are factors that influence substance abuse at individual level, there are remedies to prevent substance abuse and its consequences at individual level. This section discusses interventions that can be applied to individual students to prevent substance abuse. Park, Kim, Gellis, Zaso and Maisto (2014:523) argue that personalised strategies yield better results as they utilise information about individual impulsivity and intervene accordingly. For example, if individuals are influenced by previous positive consequences of binge drinking, cognitive behavioural strategies can be used to help explore alternative healthier behaviours to achieve similar positive outcomes (Park et al 2014:523). Personalised interventions can also be used when students encountered negative consequences. In this case, the students will be educated and motivated to reduce the harm from substance use (Park et al 2014:523).

Risk behaviours in youths are interrelated to each other (Kurt 2015:846). Kurt (2015:847) suggests that health professionals who serve university students should focus on systematic provision of substance abuse prevention services while being aware of the dynamic link between risky behaviours. A summit was conducted at Villanova University, Great Philadelphia, USA in June 2012 on the prevention of non-medical prescription opioid abuse (Andes, Wyatt, Kiss & Mucellin 2014:30). The participants in this summit explain that those students who are at greater risk of prescribed opioid abuse should be identified and supported at individual level (Andes et al 2014:33). Kepper, Koning, Vollebergh and Monshouwer (2014:147) argue that

the interventions should be tailored to the specific personality characteristics of individuals.

Education and counselling at individual level

The health education must be targeted to a specific population to be effective (Webster et al 2014:158). School programmes must be adaptive and responsive to the particular characteristics of their population (Webster et al 2014:158). According to Javier et al (2013:236-237), institutions with diverse ethnic group students should tailor their intervention based on the ethnic and other socio-demographic characteristics of individual students. Primack et al (2012:374) explain the use of the concept of social marketing- that is targeting individuals for intervention based on their socio-demographic characteristics. Gathuru et al (2015:274) further claim that understanding the characteristics of college students is important for effective intervention. Holtzman, Babinski and Merlo (2013:369) suggest that individuals need to be targeted for specific substance abuse interventions.

Interventions should emerge from understanding the underlying causes of substance abuse (Fischer et al 2014:192). For effective health communication, Mackert, Mabry, Hubbard, Grahovac and Steiker (2014:279-280) emphasise on the importance of understanding the target audience with regard to their knowledge and perceptions. Mackert et al (2014:280) also recommend conducting formative research to understand the target audience. Nakajima, Hoffman and Al'Absi (2014:279) add that identifying the psychological and biological determinants of substance abuse in individuals is important for development of effective interventions.

Understanding the culture in which each student grew up is also important. Most of Mexican-American university undergraduate students who participated in a study by Chavez-Palacios et al (2012:17) believe that cannabis abuse is effective coping mechanism for anxiety. In Morocco, the taboo related to substance abuse results in only 2% of female students benefiting from listening therapy of students with cigarette smoking dependence as opposed to 45% of male students (Jaouahir, Azzaoui, Lotfi, Ahami, Faid & Rusinek 2015:158). Thus, Javier et al (2013:237) advise that tailoring interventions at universities where there are students with

diversity of ethnicity is important. This is especially essential in Ethiopian universities which have students with huge cultural and ethnic diversity.

Tailoring interventions may also depend on whether the intervention is in a developing or developed country. For example, driving under the influence of substances such as alcohol and cannabis is major offence among students in developed countries like Canada (Fischer et al 2014:193). As a result, students' access to transportation options other than private vehicles may be a considerable intervention in such countries (Fischer et al 2014:193).

Interventions that focus on mental illness

It is recommended to use both psychotherapy and chemotherapy to address the demands of students with substance abuse disorder. As mental health problem is associated with substance abuse, any intervention on substance abuse should include screening and treating for concomitant mental illness (NIDA 2014:16). Health officials who work with university students should screen students for possible abuse of prescribed substances and substance abuse disorders (Halperin, Smith, Heiligenstein, Brown & Fle 2010:102; Varga & Parrish 2015:470). Physicians are advised to treat co-morbidities simultaneously as students who present for mental illness could at the same time have substance abuse disorder (Bannink et al 2015:7; Gerra & Somaini 2013:110). Co-morbidity of substance abuse and mental health problems increases the risk of HIV infection. As a result, health care providers should consider the prevention, care, and support of HIV in these students (Gerra & Somaini 2013:110).

Psychotherapy

Several literatures indicate that psychotherapy, rather than the usual trend chemotherapy, has shown good results in treating students with substance abuse problems. For example, Adorno, Chassler, D'Ippolito, Garte-Wolf, Lundgren and Purington (2013:203) argue that addiction to substance is chronic illness that requires multifaceted interventions including mental health service and psychological support. According to Jaouahir et al (2015:163), psychotherapy is an important ingredient of treating substance addiction. Jaouahir et al (2015:162) argue that there

are individuals with personal traits prone to addiction who need their thoughts and behaviours to be treated psychotherapeutically before treating physical dependence. However, most treatment centres in many parts of the world focus on pharmacological treatments (Kramer 2016:11). Lofgren (2011:785) adds that cognitive and behavioural therapy play an important role to address the physiological factors that contribute to addiction.

In some societies, addiction is a taboo. This was evidently seen in the study on Moroccan drug user students that aimed at assessing the effect of listening withdrawal therapy (Jaouahir et al 2015:158). The female participants in this study believe that addiction is taboo and they failed to attend the listening therapy programme. As a result, only 2% of female participants as opposed to 45% of male participants benefitted from cigarette smoking (Jaouahir et al 2015:158). Thus, health counsellors should make efforts to reduce the stigma related to substance abuse problem (Mackert et al 2014:280). Mackert et al (2014:280) suggest key messages such as ‘‘*substance abuse problems are not characteristics defects and might be the results of genetic or inherited problem*” to reduce the associated stigma.

Pharmacological intervention

Pharmacotherapy cannot be set aside in the treatment of substance dependence and addiction. Lofgren (2011:785) claims that addiction induces chemical changes in the body and these chemical changes need to be corrected pharmacologically. Literatures cited by Halperin et al (2010:102) suggest that different pharmacological interventions including the use of short acting nicotine products (nicotine gum, lozenge or spray) for treatment of smoking are helpful. Furthermore, addiction must be treated as disease that must be cured (Lofgren 2011:785).

2.4.1.2 Dimensions at Interpersonal level

The second component of Social Ecological Model focuses on interpersonal factors. University students are at higher dynamic of social interaction and the likelihood that interpersonal relations can affect their substance abuse behaviour is high. This notion is supported by several studies that are discussed in the following sections.

Several researches indicate that university students whose parents, relatives, friends, peer groups or lovers abuse substances tend to be involved in substance abuse (Bannink et al 2015:6; Birhanu et al 2014:2; Lemelin et al 2014:191; NIDA 2014:2, 12; WHO [Sa]:36). The National Institute on Drug Abuse (2014:13) asserts that many students use substances because they fear not being accepted in social circles that includes substance abusing peers. Moreover, when young people feel isolated, they tend to sacrifice their substance abstinence behaviour for getting friends (WHO [Sa]:36). Another research indicates that sociability and the desire to make friends are important determinants in substance initiation and continuation (Salameh et al 2014:289). Terrion (2012:4) defines social capital theory as interpersonal relationships or social networks that are important factors in students' substance abuse.

2.4.1.2.1 Factors related to interpersonal relations

The following discussions indicate that interpersonal relations with family members, peers, and relatives play an important role in determining substance abuse among students.

The family as interpersonal factor

Family is the first school where human beings start to learn the world. The influence of family on substance abuse among university students is evidently seen in several literatures. The Massachusetts Department of Public Health Bureau of Substance Abuse Services (2009:3) states that family behaviour affects the risk of substance abuse among young students. Jurcik et al (2013:258-259) analysed the relationship between parental behaviour and risk perception as it applies to substance abuse. According to this analysis, students with neglectful parenting were more likely to have low risk perception and high engagement in substance abuse than those with affectionate parenting (Jurcik et al 2013:259-260).

Parental supervision is important in preventing students from substance abuse. This was supported by a study on Rwandan students which states that young people without parents were at higher risk of substance abuse compared to those with one or both parents (Kanyoni et al 2015:4). According to Kumar, O'Malley, and Johnston

(2014:270), parental involvement in a young student's life such as schooling is an important determinant of the student's behaviour. Kumar et al (2014:279) argue that parental involvement protects students from engaging in substance abuse. Chavez-Palacios et al (2012:17) add that senior family members' supervision protects young students from the risk of substance abuse.

The behaviour of family members with regard to substance abuse is also an important factor. This was evidently seen in several studies. For instance, a study conducted by Rozenbroek and Rothstein (2011:361) indicates that about 20% of non-medical opioid abuser university students in USA mentioned their family as a source of their substances. Seventy nine percent of glue abusing street children in Kenya reported that they had a family member who abuses alcohol, cigarette, or other substances (Embleton, Atwoli, Ayuku & Braitstein 2013:3). Moreover, 18% of street children who ever abused drugs, were introduced by family members (Embleton et al 2013:5). A study by Gebreslassie et al (2013:8) also concludes that students whose family members are involved with substance abuse are at higher risk of being involved with substance abuse. Another study on students at Worota district, Northern Ethiopia, indicates that students, whose parents or siblings abuse substance, were at higher odds of substance abuse (Birhanu et al 2014:4). Furthermore, students whose families drink alcohol were 2.3 times more likely to engage in substance abuse (Birhanu et al 2014:4). The study on undergraduate students at Hawassa University indicates that students who reported that their family members abuse psychoactive substances were more than 2 times more likely to abuse psychoactive substance compared to those students who reported that their families do not abuse (Kassa et al 2014:4).

Peer groups as interpersonal factor

Social network increases the risk of substance abuse when friends, relatives, or lovers abuse substance (Alsanosy, Mahfouz & Gaffar et al 2013:6; Lemelin et al 2014:191). The study conducted by Kohn, Saleheen, Borrup, Rogers and Lapidus (2013:121) among undergraduate students attending a large New England public university in USA indicates that attending parties and abusing substances were significantly correlated. Gebreslassie et al (2013:8) and Massachusetts Department of Public Health Bureau of Substance Abuse Services (2009:3) argue that substance

abuse among friends of students is strong predictor of students' substance abuse. Kepper et al (2014:147) investigated the difference between students with mild academic disability and without mild academic disability with regard to substance abuse. The findings of this study revealed that students with mild academic disability were less likely to be involved with substance abuse. The explanation for this result was that substance abuse among students is a social function and mostly used with peers. Thus, the difficulties in making and keeping friends among students with academic disability leads to less participation in substance abuse (Kepper et al 2014:147). In their evaluation of the determinants of the risk taking behaviour including substance abuse among Lebanese university students, Salameh et al (2014:289) found that making friends and sociability desire were important factors for their substance abuse. Terrion (2012:15) conducted a study on university students in recovery from substance abuse. The participants of this study spoke of the difficulty in making friends as most of their peers go to clubs where dances, and alcohol and other substances are served which the recovering students want to avoid (Terrion 2012:15). Other participants of this study explained that they achieved to make new 'serious' friends. Students in recovery call the 'serious students. 'nerds' to mean that they are serious students 'who attend classes, complete work on time, and are abstained from substance abuse' (Terrion 2012:15).

Besides pushing towards substance abuse, peers can be the direct source of substances for students. According to Rozenbroek and Rothstein (2011:361), the main sources of prescribed drugs for non-medical uses among university students in USA are friends or acquaintances for whom the drugs are prescribed for legitimate medical use. Moreover, about 71.8% of opioid abuser American university students reported that they use the drugs to get together with their friends and acquaintances (Rozenbroek & Rothstein 2011:361). About 33.9% of respondents who abused neuro-enhancing substances in a study on Swiss university students claim that they knew one or more people who use neuro-enhancer substances (Maier et al 2013:5). To the contrary 64.5% of those who do not abuse neuro-enhancing substances reported that they do not know anyone who abuses substance for neuro-enhancement (Maier et al 2013:5). Gebreslassie et al (2013:6) add that 81.1%, 77.8%, and 83.3% of their respondents were introduced to khat, alcohol, and cigarette respectively by their friends.

However, peers can also contribute positively to the prevention of substance abuse. Beck et al (2014:888) come up with a strikingly different view that friendships with substance abuser can be a protective one. Beck et al (2014:888) argue that students get the knowledge of the consequences of substance abuse from their peers who abuse substance. Substance abuser participants in a study by Embleton et al (2013:6) also reported that friends who do not abuse substances can assist the abusers in quitting substance abuse. Beck et al (2014:889) further argue that peers can play an active role in cognitive construction of risk perception.

2.4.1.2.2 Interventions at interpersonal level

Intervention programmes that aim at saving university students from substance abuse and its consequences should extend beyond the schools. In support of this idea, Gil-Lacruz and Gil-Lacruz (2013:340) recommend that anti-substance messages that aim at young students should be delivered not only in schools but also places such as to families at home, hospitals, recreational centres and work places.

Individuals who form social network with students including family members, friends, and peer groups can be involved in supporting students regarding substance abuse. According to Terrion (2012:4-5), Social Capital Theory, that explains interpersonal relationships or social networks, can be used to facilitate recovery from addiction. According to Demery, Thirlaway and Mercer (2012:528), personal relationships are important remedies to get an individual out of substance abuse disorder. Therefore the universities should have a means to get the support of families, peer groups and other relatives.

Interpersonal interventions that focus on family

Targeting parents in substance abuse education is important as students who communicate about the risks associated with substance abuse will not be victimised through misinformation about substances (Mirlashari, Demirkol, Salsali, Rafiey & Jahanbani 2012:466). Parents should be advised to honestly educate their children about the fun that students could get from substances and the associated risks (Mirlashari et al 2012:466). Adorno et al (2013:203) conducted a study to explore the

determinants of joining addiction treatment centres among substance abusers in Massachusetts, USA. This study claims that substance abusers with supportive family or friends are more likely to enter treatment centres (Adorno et al 2013:203). Adorno et al (2013:203) recommend that those who work to treat students for addiction need to design a strategy to involve family in the management of addiction.

Interpersonal interventions that focus on peer groups

Young students tend to overestimate substance abuse in their respective peer groups and this perception is predictive of higher substance abuse (Pischke, Zeeb, Hal, Vriesacker, McAlaney, Bewick, Akvardar, Guillén-Grima, Orosova, Salonna, Kalina, Stock, Helmer & Mikolajczyk 2012:2). The social norms approach, a known intervention approach in American universities, focuses on correcting the exaggerated perception of higher use is the norm (Bennett & Holloway 2014:453). Interventions using the social norms usually aim at correcting the students' perceptions through students' news articles, radio programmes, lectures, poster campaigns, and advertising at other public places (Bennett & Holloway 2014:453).

Most non-prescribed drug abuser students get the drugs from their peers who get the drugs for legitimate use. Educating the students to whom the drugs are prescribed on the consequences of selling/giving the drugs to others is important (Javier et al 2013:236-237; Varga & Parrish 2015:470; Vidourek, King & Knopf 2013:351). Peer education in prevention of khat chewing among students at Hawassa University was recommended by Alsanosy et al (2013:6).

2.4.1.4 Dimensions at institutional level

The reviewed literatures indicate that institutions play an important role in promoting and preventing substance abuse among students. The following discussions indicate determinant factors for substance abuse and possible interventions at institutional level.

2.4.1.4.1 Factors at institutional level

University campus is the first place where most of students declare freedom from their parents' supervision. If the campus environment allows, university will be the

first place for substance experimentation for most of the students (Jaouahir et al 2015:158). The Wales government in UK recognises that university students are at high risk of substance abuse due to new freedom from adult supervision and new environment stressors (Bennett & Holloway 2014:454). Researchers identify three primary reasons for substance abuse among university students namely: (1) freedom of students from their parental control, (2) the social environment in the campus including peer influence, (3) the widespread availability of the substance (Mackert et al 2014:274; NIDA 2014:3). While 61.3% of respondents in a study at Tehran University started smoking after entering university, 63.3% of the respondents increased their smoking when they join university (Jafari, Zamani & Alizadeh 2011:106).

Literatures indicate the association between substance abuse and the campus environment. For an example, Lashley and Yearwood (2011:84) argue that students who spent extra time on campuses are at higher odds of involving in risky behaviours including substance abuse. Dawson, Grant, Stinson, and Chou cited in Lewis, Likis-Werle and Fulton (2012:371) accentuate that the social environment in university promotes risky drinking. Primack et al (2012:381) add that university students in USA who reside in their parents' or guardians' home had lower odds of being involved in substance abuse compared with those students who reside in the campus. According to Kurt (2015:842), university years can be seen as challenging period in which compulsive behaviours are likely to happen as youths face many difficulties.

The campus environment increases the chance of substance abuse through exacerbating stress and tension. For some students, joining university is an upheaval experience which can induce or exacerbate mental health problems (Demery et al 2012:527). Mental health problems further cause lack of concentration on what the students read which completes the vicious circle of the complex mental problem by inducing academic pressure (Demery et al 2012:527). According to Demery et al (2012:520), young students who enter the university with mental problems are at higher risk of substance abuse as the new environment exacerbates their symptoms. Furthermore, students with mental problems start to experiment with substances (Demery et al 2012:528). About 19.8% of Swiss university students

admitted that they used psychoactive substances during the stressful life events (Maier et al 2013:1, 4).

Adapting to the new campus environment may push students towards substance use. This was evidently seen among Hispanics in USA who consumed alcohol and other substances as negative coping strategies when they undergo acculturation (Chavez-Palacios et al 2012:11). The WHO ([Sa]:29) points out that transitions in life such as moving to a new area, changing new peer group or beginning a romantic relation are always stressful because they demand behaving in new ways. These factors contribute to involvement in substance abuse among university students.

Besides the campus environment, substance abuse for the purpose of cognitive enhancement is a growing concern of the recent academia. Beyer, Staunton and Moodley (2014:4) analogously compare the abuse of methylphenidate among university students with doping in athletics. According to Beyer et al (2014:4) doping, the abuse of bio-chemicals by athletes to enhance their performance during the competition, is violation of legal and ethical values of the sport profession but the abuse of neuro-enhancer chemicals in the academia is not yet considered as an ethical issue. As the concept of doping is known in the field of athletics, the concept of cognitive enhancement is gaining ground in the society of academia (NIDA 2014:3). Cognitive enhancement in academia is defined by Bostrom and Sanberg cited by Sattler, Sauer, Mehlkop and Graeff (2013:1) as ‘‘the amplification or extension of the core capacities of the mind through improvement or the augmentation of internal information processing system.’’. National Institute on Drug Abuse (2014:13) claims that students may abuse stimulants because they think those substances enhance or improve their performance.

Substance abuse for neuro-enhancement is especially common among university students in the industrialised countries. In Germany, students have shown higher tendency of abusing substances for cognitive enhancement (Maier et al 2013:6-7). Literatures reviewed by Sattler et al (2013:1) indicate that 20% of readers of one magazine in Germany, 23% of physicians in northern America, 3 to 11% of students in USA, and 0.7 to 4.5% of students in Germany abuse or have willingness to abuse substance that can increase reading performance. Swiss university students abuse neuro-enhancement substances ranging from soft enhancers such as coffee to

prescribed drugs during preparation for and examination period to enhance their performance (Maier et al 2013:4). Researches cited by Trunzo et al (2014:396) show that university students drink energy drinks to complete academic works or while engaging in other academic activities. Students with poor social problem solving ability may seek the quick fix by drinking energy drinks to stay awake for longer stretches of time to study or to get an academic edge (Trunzo et al 2014:400).

Despite a lower tendency of the use of neuro-enhancement in developing countries than that of industrialised countries, studies also show the occurrence of the practice of abusing substances for neuro-enhancement in those countries. The demanding academic work in medical schools was believed to determine the abuse of methylphenidate illicitly among medical students in South Africa (Beyer et al 2014:2). About 19.7% respondents sample at Hawassa University reported that they abused substance to get energised for academic purpose (Daniels & Roman 2013:3). Gebreslassie et al (2013:8) explored the factors associated with substance abuse among students at Axum University and their findings indicate that most students abuse substances to stay alert when reading. A study conducted by Gebrehanna et al (2014:6) on undergraduate students at Bahir Dar University revealed that students chew khat for academic performance enhancement.

Besides the neuro-enhancement, university students also abuse substances to cope with academic pressure as the desire to achieve high is important factor in higher institutions. Students abuse neuro-enhancing substances when they are afraid that they could not fulfil the expected performance (Maier et al 2013:1; Sattler et al 2013:1). A participant in a study by Demery et al (2012:528) stated that ‘‘exams were the worst times for me really because the added pressure of knowledge that I had to perform at a certain standard in order to get through to the next phase’’. Literatures cited by Maier et al (2013:1) indicate that students use substances to get relief from academic related tension.

Though students in many parts of the globe claim academic competition as a reason for substance abuse, several studies indicate that substance abuse has the opposite effect. In this regard, Trunzo et al (2014:396) argue that the university students wrongly perceive the benefits of caffeinated products. This study revealed that energy drinks are negatively associated with academic performance (Trunzo et al

2014:399). Webster et al (2014:157) also account that multiple substance abusers display lower academic performance compared to single substance abusers. The prevalence of substance abuse among Dutch students was higher among those with lower educational status (Verhagen et al 2015:7). While many researches indicate the negative association between substance abuse and academic performance, Dutch students with mild academic disability were at significantly lower risk for the onset of weekly alcohol and cannabis abuse (Fischer et al 2013:144-145). However, those students with academic disabilities are more prone to hard drug abuse such as cocaine than those without academic disability (Fischer et al 2013:146).

The availability and accessibility of substances is an important predictor of substance abuse among university students as for any consumers of any goods of interest (Goreishi & Shajari 2013:68). The prevalence of tobacco, alcohol, and other legal substances is considerably high among university students as these substances are easily available for youths in school (Warren, Smalley & Barefoot 2015:1; WHO [Sa]:311). Moreover, if the university campus is surrounded by spots of substance markets, this accelerates the rash of the students toward substance abuse (Terrion 2012:4). A similar but slightly different important factor for students especially in developing countries is the affordability of the substances of abuse. When the price of addictive substances is cheap, it facilitates the abuse by many students (Goreishi & Shajari 2013:68; WHO [Sa]:32).

2.4.1.4.2 Consequences of substance abuse at institutional level

Substance abuse among university students affects the teaching and learning process of the institution as a whole through aggravating the delinquency behaviours of university students which is related to their developmental age. For example, the results of a study by Umana, Fawole and Adeoye (2014:4) indicate that respondents who drink alcohol and smoke cigarette significantly experience violence with Odds Ratio of 2.36; 95% Confidence Interval (CI) 1.82-3.06 and 2.46; 95% CI 1.58-3.83 respectively. In their study on undergraduate students at Hawassa University, Kassa et al (2014:4) found that about 32% of respondents reported that they engaged in fights and arguments following substance abuse.

Substance abuse also negatively impacts the academic performance of students. Even though many students wrongly perceive that substance abuse improves academic performance (Trunzo et al 2014:396), studies indicate that substance abuse among university students may lead to academic failure (Javier et al 2013:228-229).

2.4.1.4.3 Interventions at institution level

Universities usually receive students who are not abusing substance but having the potential to do so. Literatures reviewed by Gathuru et al (2015:275) indicate that university students are non-daily smokers. According to Gathuru et al (2015:275), university students should be the target for primary prevention. Chavez-Palacios et al (2012:18) also argue that university students are the best targets for interventionists who want to correct the misperception about substances. This is because the young university students are out of the firmly entrenched beliefs and attitudes of their society. Another reason for focusing on university students is that the burden of substance abuse on them is high. For example, in their comparative study between university students and non-university students in USA regarding to hookah abuse, Lee, Bahreinifar and Ling (2014:16) found that 84.5% of hookah only abusers were university students. As a result, Lee et al (2014:16) suggest that university campuses are efficient places to reach young people who are hookah abusers. Most of the interventions at institutional level deemed to emanate from the determinant factors at interpersonal level which have already been discussed in the previous section. This section thus presents the findings of the literature review on the likely interventions based on the determinant factors.

The first thing that institutions could do is designing appropriate policy and strategies that can protect their students from substance induced problems. The government of Wales, UK recommends Wales' universities to develop policies that can reduce the risk of substance abuse (Pischke et al 2012:6). The American national summit in Philadelphia, Pennsylvania, urges universities to translate researches on substance abuse into practice (Andes et al 2014:36). This scholarly summit also recommends universities to utilise local health agencies' services and expertise to help their students with regard to prevention and management of substance abuse (Andes et al 2014:38). According to Andes et al (2014:34), winning the support of higher

officials of a university is an important ingredient of substance abuse prevention strategy in an institution. In America, university administrators are starting to develop educational materials addressing the myths about the safety of hookah abuse (Lee et al 2014:17).

Health education at university campuses

Though authors like Bennett and Holloway (2014:452) claim that education and awareness campaign is one of the most common interventions to prevent substance abuse in universities, the usual health education approach may not be effective to prevent substance abuse among university students. Lewis et al (2012:373) state that university campuses usually respond to risky drinking among students by providing messages regarding the risk of drinking and enforcing sanctions. However, Pischke et al (2012:6) accentuate that messages aimed at using exaggerated fear inducing approaches did not show good results in Europe and USA as the students could correctly perceive that these exaggerated harmful consequences are unlikely to occur. Reports reviewed by Lewis et al (2012:373) also indicate that the traditional alcohol control policies in America's university campuses are not effective. Bennett and Holloway (2014:453) give another example presenting a recent review of evaluation of substance abuse prevention projects in UK universities. The campaigns focused on informing students on the risk of substance abuse. Unfortunately, neither of the projects resulted in behaviour change (Bennett & Holloway 2014:453). To mention another example, awareness campaigns in the Jazan Region, Saudi Arabia was not effective in preventing khat chewing among students in the area (Alsanosy et al 2013:5).

The fact that the routine health education is characterised by limited achievement calls for innovative health education approaches. Bennett and Holloway (2014:453) recommend that the use of extracurricular activities brings about behaviour changes as the increase in students' activities reduces the chance of involving in substance abuse. Another strategy mentioned by Bennett and Holloway (2014:453) is brief motivational interview on drug misuse among students. This strategy has shown encouraging result among students in London (Bennett & Holloway 2014:453). Listening therapy on Moroccan students by Jaouahir et al (2015:158) also was effective. Campus based health education approaches may use a range of

strategies. Lewis et al (2012:385) recommend an alternative approach, social norm theory, which includes media campaign to correct student misperception regarding the amount of drinking that actually occurs on campuses. Many American university students enter into mandatory counselling for violation of substance abuse campus policy. This creates a golden opportunity for student counsellors to correct the exaggerated perception of prevalence of substance abuse among campus peers (Lewis et al 2012:385). Universities are also advised to open forums and conferences where students will be involved (Gebreslassie et al 2013:8).

Providing alternative recreational options

Substance abuse prevention strategies may need to go beyond educating and counselling students. Terrion (2012:17-18) recommends that university administrators need to make their campuses free of substance abuse in order to assist students in maintaining their sobriety. Terrion (2012:18) further advises university administrators to provide substance free university based recreational activities such as movie nights and sports. This view was re-enforced by Mirlashari et al (2012:465) who claim that students who are bored by the university environment tend to abuse substance aiming at killing time and having fun.

Restricting access through campus policies, rules and regulations

Several scholars recommend universities' policies and strategies to give due emphasis to the accessibility of addictive substances to students. The argument of Gruenewald, Remer and LaScala (2013:744) that greater number of bars within communities may multiply problems of drinking through several impacts on ecological system underlining alcohol drinking applies to campus students too. Ontario Campaign for Action on Tobacco [OCAT] (2014:3) also claims that ease of access makes substance abuse more appealing to young people. Authors like Gathuru et al (2015:275) and Lee et al (2014:17) criticise the proximity of substance market (e.g hookah bars) to university campuses as it promotes substance abuse among university students. Gathuru et al (2015:276) argue that shisha, cigarette, and other addictive substances sell should be prohibited around university campuses. These calls for empowering university officials to restrict the supply of substances to university students controlling and limiting the delivery by substance

dealers (Khan [Sa]:2). A wide spread availability of substances around the university campuses should be dealt with to improve the craving tendency of students (Terrion 2012:4).

Besides restricting the vicinity markets, scholars recommend that university campuses should be equipped with policies that prohibit substance abuse. Roditis, Wang, Glantz and Fallin (2015:59) conducted an action research to evaluate the university campuses tobacco policies in California, USA. According to Roditis et al (2015:59), one of the visited campuses stated on its website 100% smoke free but it had no written policy. The findings of this study revealed that all schools included aspects of policy that were required by the state law - that is no smoking within building or state-owned vehicles and no smoking 20 feet from the door (Roditis et al 2015:60). However, none of the universities addressed 4 of the 7 items related to category campus relations with Tobacco Companies: sponsorship of campus activities, recruitment by tobacco companies, and funding from tobacco companies. The summit of scholars from universities in Pennsylvania also found that most campuses do not have policies with regard to non-medical prescription drug abuse (Andes et al 2014:35-36). The scholarly summit in greater Philadelphia criticises the lack of legitimacy on campus police officers to investigate the possible involvement of students with illicit substance abuse (Andes et al 2014:32).

Researchers also claim that dealing with substance abuse with the universities' code of conduct is helpful. Sattler et al (2013:7) advocate for developing strong university honour codes that prohibit substance abuse in the university campuses. They argue that when students expect stronger sanctions, they respect the academic integrity and policy of their university (Sattler et al 2013:7). Gebreslassie et al (2013:8) also recommend strict control of substance entrance to university compounds. Talks (2012:590, 592) advocates for conducting mandatory drug testing on university students to screen for misuse of prescribed psychoactive substances. Kassa and Deyno (2014:5) suggest that students may adopt the behaviour of substance abuse from their instructors at university, and thus campus restrictive rules should also target the instructors. Ickes, Rayens, Wiggins and Hahn (2015:131) and Roditis et al (2015:57) argue that tobacco free university campuses significantly contribute in reducing smoking and second hand smoke exposure among university students.

Some researchers still recommend not passing students to harsh criminal arrests. Day (2012:7) claims that the first contact of young people with criminal substance network in Saint Lucia is in their school where the police are involved at the behest of the school system.

Management of substance induced disorders

Public health interventions including campus based interventions on substance abuse need well organised treatment and support centres. Gerra and Somaini (2013:109-110) argue that the substance dependence treatment centre in many parts of Asian countries does not meet the burden of substance abuse in the region. According to Gerra and Somaini (2013:110), most treatment centres in Asian countries are not appealing to the substance addicted individuals as the centres are compromised due to lack of enough structure and trained personnel. However, the National Drug Dependence Treatment Centre (NDDTC) of India has developed centres of care which provide pharmacological and psychological treatment to substance dependent individuals (Ray, Dhawan & Chopra 2012:1705). Gerra and Somaini (2013:110) recommend that treatment centres should be equipped with sufficient medical supplies and trained health personnel.

According to Vidourek et al (2013:351), support and treatment centres need good infrastructure for counselling and educating students. Lee (2014:67) conducted an interview with counselling experts in USA. This qualitative investigation came up with the following themes: 1- Reducing stigma and increasing the acceptance of addiction related problems are important and 2-Addiction counselling is a speciality within the mental health field and trainees need to be equipped with important skills including thoroughly assessing substance abuse disorder, determine the appropriate level of treatment, develop treatment plans that includes evidence-based substance abuse treatment (Lee 2014:75-76).

Experience from institutions

Only few universities have well designed policies and guidelines on substance abuse. Researches cited by Terrion (2012:18) acknowledge the presence of few university campuses in USA that provide specialised support to their students who

are in recovery from addictions. The policy of the University of Vermont states that ‘‘Possession or consumption of alcohol by students on the property of the University or at University sponsored events is allowed only by students 21 years of age and older and only in areas designated by the University for the sale or consumption of alcohol. Possession or consumption of alcohol by individuals under the age of 21 or in any other places owned or controlled by the University, including on-campus residence halls, is strictly prohibited.’’. The policy of The University of Pennsylvania School of Nursing also states that ‘‘...all students involved in clinical practice settings, whether for clinical education purposes or for the recruitment of research subjects and/or the collection of research data, will need to undergo drug testing prior to working at clinical sites.’’ (University of Pennsylvania: School of Nursing 2010:2).

2.4.1.3 Dimensions at community level

Literatures indicate that there are determinant factors and corresponding interventions on substance abuse at community level.

2.4.1.3.1 Determinant factors at community level

There is enough evidence on the influence of the norms and cultures of a community on individuals’ behaviour. When substances get place in the culture of a community, its abuse will be normalised. Gil-Lacruz and Gil-Lacruz (2013:332) reflect this view while studying the impact of culture, norms, and traditions on individuals’ behaviour. For example, alcohol is culturally used to celebrate social events in many Christian communities while khat is used for similar purpose in Muslim communities and the type of substances abused among Christian and Muslim students follow the same trend (WHO [Sa]:33). According to Bannink et al (2015:6), Beck et al (2014:887) and Jaouahir et al (2015:160), students who live in a community where addictive substances are largely available and substance abuse is a norm, are at higher risk of substance abuse.

Social norms, the perceptions, and believes are important factors that modify substance abuse among young adults (Pischke et al 2012:2). Bannink et al (2015:6) and Birhanu et al (2014:4) argue that students in a community with a norm of permissive substance abuse are prone to the risk of the substance abuse. A study

on University students in USA found that religiosity decreases the likelihood of cigarette smoking (Klassen, Smith & Grekin 2013:381). A study conducted by Sattler et al (2013:7) on German students claim that deeply internalised norms against cognitive enhancing substances significantly reduced the abuse of this substances among university students. Onya, Tessera, Myers and Flisher (2012:5) argue that community affirmation of alcohol drinking was significantly associated with alcohol drinking among adolescents in rural South Africa. Moreover, students at Worota town with religious affiliation were 54% less likely to abuse substance compared to their non-religious affiliated counterparts (Birhanu et al 2014:5). The study conducted on students in Worota town also reported that community norms which are favourable for substance abuse were two times more likely to lead to students' substance abuse than community norms that were not favourable to substance abuse (Birhanu et al 2014:5). Berhanu et al (2012:1201) conducted a qualitative study regarding khat abuse on khat chewer HIV voluntary counselling and testing centre clients in Addis Ababa, Ethiopia. Seventy percent of participants reported that they came from a community where chewing khat is normalised. Sattler et al (2013:7) explain that violation of the internalised norms may result in internal penalties such as psychological costs. The findings of Sattler et al (2013:7) revealed that strongly internalised norms work as an instrument to refrain from abusing cognitive enhancement substances.

2.4.1.3.2 Interventions at community level

While the impact of community norms and cultures on individuals' substance abuse are undeniable as discussed earlier, the values and assets of communities can be utilised to reduce the substance related problems and the underneath discussions show this.

Terrion (2012:17) explains that community recovery capital, the community attitudes, policies, and resources related to addiction are important inputs for students in recovery from addiction. In some communities, cultural norms govern the behaviour of young people; Onya et al (2012:6) advise interventionists to consider these factors while designing intervention on substance abuse. Programmes that modify the culture of community in a way that affirms substance abstinence could be helpful (Onya et al 2012:6). For example, in order to support students with cannabis

dependent disorder, Chavez-Palacios et al (2012:18) advise counsellors to consider the impact of the Mexican-American culture with regard to cannabis abuse. According to Chavez-Palacios et al (2012:18), Mexican-Americans believe that cannabis is the best mechanism to alleviate anxiety symptoms and thus counsellors who give attention to this cultural view win the trust of Mexican-American students.

Some substances such as shisha are socially acceptable in some communities and thus need their own strategy (Klassen et al 2013:384). When substances are socially accepted as harmless, intervention at the community level such as correcting the erroneous believes and regulating the accessibility is important (Klassen et al 2013:384; Lee et al 2014:17). This requires substance specific evidence based interventions rather than applying common intervention strategies for all substances (Klassen et al 2013:384; Lee et al 2014:17).

Lack of awareness regarding consequences of substance abuse at community level requires an intervention that can improve the knowledge and perception of the community at large (Jafari et al 2011:109). The WHO (2006:15) suggests that social interventions counselling and health education at community level are helpful. Religiosity is one of the social determinates of behaviours among University students. Klassen et al (2013:384) recommend the incorporation of students' religiosity into the endeavours of prevention of substance abuse.

2.4.1.5 Dimensions at society level

There are factors and intervention modalities that can be used at macro level. The following points pertain to the important factors and interventions to prevent substance abuse at national level.

2.4.1.5.1 Factors that determine substance abuse at society level

According to the Social Ecological Model, the policies, legislations, regulations and the political commitment of authorities at societal, local, regional, or country level are some of the determinants of the substance abuse among students at macro-level (Winch 2012:10). This is supported by a handful of researches. For example, Beck et al (2014:889) analysed data from school survey on alcohol and other substances

from eight European countries. The results of the analysis indicate that a country of residence was major determinant at macro-level (Beck et al 2014:889). According to Beck et al (2014:889), students from countries where tobacco, cannabis, and alcohol abuse is common tend to have low risk perception than their counterparts. For example, in Netherlands, the political and social attention for substance abuse among young people is strong (Verhagen et al 2015:7). In Kenya however Embleton et al (2013:6) claim that the widespread availability of glue and lack of control in the country contributed the widespread glue abuse among Kenyan street children.

Even though policies at country levels are important factors, Gil-Lacruz and Gil-Lacruz (2013:339-340) are of the opinion that restrictive policies may not be sufficient intrinsically unless supported by creating environment not receptive for substance abuse. In this regard, the media is one of the important factors at macro-level. For instance, the analysis of national school based survey in the Philippine show that exposure to alcohol marketing through seeing actors drinking alcohol on television (TV), alcohol brand advertising during sports on TV, and possessing items with alcohol brand logo were associated with increased reports of current alcohol drinking among students (Swahn, Palmier, Benegas-Segarra & Sinson 2013:3-4). A literature review conducted by Gathuru et al (2015:274-275) indicates that retail websites that market hookah rarely refer hookah as tobacco and this led to the misperception that hookah is less harmful than tobacco among U.S. university students. Some substances like synthetic cathinones are ambiguously advertised as products for food (Valente, De Pinho, Bastos, Carvalho, Carvalho 2014:19). These substances are misled by the term ‘legal highs’ and thus believed as they are safe to consume (Valente et al 2014:20). According to Gathuru et al (2015:275), tobacco companies systematically target university students in their advertisement leading to most students start smoking when they join the university campuses.

2.4.1.5.2 Economic and social consequences of substance abuse on the society

The economic cost of substance abuse is considerably large. The illicit substance business may create jobs and wealth to certain people but it harms the formal economy through destruction of markets, creating income inequality, undermining the rule of law, and fuelling corruption (UNDP 2015:20). Black markets for illicit substances have an estimated turnover of $332 billion annually (UNDP 2015:20).

According to CDA (2013:43-44), South Africa has incurred a cost of R101, 000 million in 2005 for illicit drug. This accounts for about 6.4% of the country's Gross Domestic Product (DGP).

Substance abuse predisposes many youths to a range of life challenges including personality problems, delinquency, arrest, greater morbidity and mortality, and higher risk of substance abuse during adulthood (Falls, Wish, Garnier, Caldeira, O'Grady, Vincent & Arria 2011:222; Kassa et al 2014:1; Keane et al [Sa]:5; Konecky & Lawyer 2015:207; Kumar et al 2014:269; Pischke et al 2012:1; Verhagen et al 2015:1). While chronic exposure to substance abuse results in many social and health problems on mankind, it severely impacts the health, economy, and welfare of youths in developing countries. This is because addiction and dependence among young people in poor countries is complicated by lack of appropriate awareness, poor nutrition, and poor medical management of addicted youths (Al'Absi, Nakajima, Dokam, Sameai, Alsoofi, Khalil & Molham 2014:307). Ms Bathabile Dlamini, South Africa's Minster of Social Development, said that ''...the youths of South Africa are particularly hard hit due to increases in the harmful use of alcohol and the abuse of illicit drugs'' (CDA 2013:2). According to Javier et al (2013:228-229) and Sahker, Acion and Arndt (2015:118), substance abuse among university students is followed by many adverse consequences including academic failure, impaired social and interpersonal relations, financial troubles, and mental health problems. Goreishi and Shajari (2013:67) emphasise that substance abuse imposes heavy emotional, social, and health damages to the university students. About 12.5% of high-school students in USA were found to meet diagnostic criteria for substance use disorder (Warren et al 2015:1). The overall result of this will negatively impact the development and prosperity of societies.

2.5.1.5.3 Interventions at societal level

Jacob Zuma, the president of the Republic of South Africa, stated that the fight against substance abuse is a key aspect of promoting social cohesion and stable communities in a country (CDA 2013:20). Tackling substance abuse problems need to consider structural factors such as employment, crime, and lack of economic opportunities (Sorsdahl et al 2012:6). Sattler et al (2013:7) maintain that the general society, politics, and legislations must collaboratively work to prevent substance

abuse in the society including among university students. Sattler et al (2013:7) recommend policy makers to design policies, regulations, and guidelines that can influence the internalised norms within a society.

Debates on policies and strategies

There is no complete consensus on the strategies for prevention and control of substance abuse at international level. The followings are two of the main debates on strategies for drug control among scholars and policy.

Debates on Rehabilitating versus Prosecuting substance abusers

The current prohibitive drug policies and harsh law enforcements regarding illicit drug are criticised for their being associated with increased incarceration, social marginalisation of substance abusers, and rapid spread of HIV among Intravenous Drug Users (IDU) (West Africa Commission on Drugs [WACD] 2014:32, 42; Werb 2013:1215). The Global Commission on Drug Policy (GCDP) reported by Faubion (2013:399) states that the war on substance has failed and the illegal substance market is now controlled by organised criminal gangs. Ausness (2013:1120) also argues that the existing policies that focus on individual lawsuits have not been successful. Ausness (2013:1156) adds that enforcing criminal sanctions against those who manufacture and distribute the illegal substances are more productive than prosecuting the substance abusers. Faubion (2013:400) concludes that a new strategy that can combat substance related crimes is imperative.

The common point of debate with regard to substance abuse is the issue of rehabilitation considering substance dependence as ill health or prosecution considering it as criminal act. According to UNDP (2015:7), the repressive law enforcements have resulted in human right violence, destruction of the livelihood of poor farmers and other people who depend on selling the substances, adversely affect the health, security, and development of societies. The UNDP (2015:16) maintains that repressive substance control policies encourage people to shift to new substances with similar potency but less controlled ones. The UNDP (2015:9) argues that the UN-drug conventions do not require the arrest of people who possess drugs for personal use. The UNDP (2015:24) mentions major human right violations across

the world including torture, mass incarceration, extrajudicial killings, arbitrary detention, and denial of essential medicines and basic health services as a result of the repressive law enforcements. Evidences show that substance control laws disproportionally punish arrested people. For example, UNDP (2015:25) indicates that 80% (Iran), 77% (Malaysia), 50% (Singapore), and 39% (Vietnam) of death penalties in 2012 were for substance offenses. Many of the counter drug policies in the current scenario resulted in a large number of people serving lengthily jail sentences for relatively small drug related offenses (Kramer 2016:11).

Debates on ban versus not ban substances

The ban or not ban of psychoactive substances is a point of debate in many countries. Kramer (2016:11) is of the opinion that scientifically assessing the traditional and medical benefits of substances before rushing to global eradication is mandatory. Hallam, Bewley-Taylor and Jelsma (2014:2) criticise the provisional schedules of drug control by the United Nations (UN) for being without prior scientific investigation by the WHO's expert committee on drug dependence, a body composed of specialists in the field. Hallam et al (2014:1) maintain that effective and humane policies that address the control of substance abuse and availing of essential drugs for medical purposes are important.

Legalising substances like marijuana for recreational and medical use remains a point of debate among researchers and policy makers (NIDA 2014:14). Gray (2013:1330) raised his argument to: ''If you really want to achieve the real goals of our nation's drug policy, help us repeal the policy of drug prohibition, which has led us down the wrong path for decades.'' According to Day (2012:7), decriminalisation of marijuana in California, has largely contributed to the reduction of juvenile crime by 20% in a year period. Gray (2013:1332) accentuates that decriminalising marijuana in the Netherlands resulted in reduction in marijuana abuse per capita by halve. The Dutch authorities have developed a policy known as 'toleration' through which the criminal misdemeanour of selling soft substances is not pursued by prosecutor (Faubion 2013:386). As a result, the Dutch government allows coffee shops to sell small amount of soft substances (Faubion 2013:386). The justification for the decriminalisation of marijuana in Netherlands is a policy of prohibition is ineffective, and that people will continue abusing substances regardless of their legal

status (Faubion 2013:386). According to Faubion (2013:388), the Netherlands is known as the most liberated country in terms of cannabis use and de-regulation. As discussed in the previous sections, proponents of prohibition however argue that substances like marijuana have potential to induce dependence and harm health, and thus deserve strict control (Faubion 2013:401).

Researches also indicate that over restrictive policies impacted the spread of infections like HIV. Boettke, Coyne and Hall (2013:1079), Gray (2013:1329) and WACD (2014:15) claim that drug restrictions predispose people to infections including HIV and HBV following the use of unclean needles. Werb (2013:1215) also argues that the current restrictive drug policies have resulted in the spread of HIV among IDU. Currently, nearly 3 million IDU are believed to be infected with HIV globally (Werb 2013:1216-1217). WACD (2014:42) reports that 1.8 million people in SSA inject unclean needle to take substances due to restriction and 11.8% of people who inject substances are living with HIV. The WHO recommends decriminalising substance abuse in order to create conducive condition for HIV prevention test, care and support among substance abusers (UNDP 2015:18).

Some other literatures indicate that criminalising light substances predisposes to involving with hard substances and the criminal networks thereof. Day (2012:7) claims that the criminalisation of marijuana creates the first contact with criminal network in the prisons for the young people leading to continuation with substance trafficking crimes. The legalisation of cannabis is also rationalised by consumer protection - that is differentiating cannabis from the other harder substances such as heroin or cocaine minimises consumers' exposure to the dangerous criminal gangs (Faubion 2013:404).

The international principles of substance control

The prevention of substance abuse is a borderless agenda that involves many countries and regions at single goal of reducing substance-related problems. Commentators note that the effectiveness of substance control policies depends on political will and cooperation of nations (Srubar 2015:198). The fact that the technological sophistication of substance traffickers outpaces the control mechanism of policies (Srubar 2015:198, 202) calls for international cooperation against

substance trafficking. Currently, there are literatures that advocate for inclusion of substance traffickers within the jurisdiction of International Criminal Court (ICC) (Srubar 2015:203). The UNODC calls for global governance to regulate the transnational organised crimes including substance trafficking (CDA 2013:48; Yong-an 2012:17).

The global substance policy aims at reducing all harms related to substance abuse. According to Boettke et al (2013:1077), the main aims of substance policies are: to reduce the abuse of substances, disrupt the substance supply chain, reduce violence and substance related crimes, and dismantle the mechanism through which substances reach users. Gerra and Somaini (2013:109) also illustrate that substance policies at national level should aim at reducing demand for illicit substances, relieving sufferings, and decreasing substance related harms to individuals, families, communities, and societies.

The current substance control strategy follows reducing the demand for and supply of illicit substances. The supply reduction follows on drug interdiction and eradication and the demand reduction approach focuses on police crackdown and arrest on the consumer side (Werb 2013:1216). However, Akbari (2011:69) recommends that reducing demand for substances through appropriate public health intervention is the best way. In this regard, Andes et al (2014:32) outlined five major action areas:

- Education on the dangers of substance abuse.
- Controlling and monitoring substances of abuse.
- Proper medical disposal of prescribed drugs which are potentially liable to abuse.
- Law enforcement on the problem drug prescription, dispensing and using.
- Applying evidence-based interventions at all levels.

The UN bodies suggest mainstreaming of substance control efforts to the development programmes. The UNDP (2015:33) recommends creating employment opportunities, equitable access to resources, and protection against economic and environmental shock, democratic governance, and comprehensive health and HIV interventions as the best way to control substance abuse at societal level. The UNODC (2015:xvii) recommends an alternative development which aims at reducing vulnerability that predisposes to involving in illicit crop cultivation. Such alternative

development programmes are important in Coca (precursor of cocaine), Opium (the resource of opioids) and cannabis producing countries (UNODC 2015:xviii). The International Narcotics Control Board (INCB) suggests that well developed prevention programmes can significantly reduce substance abuse and its consequences (Yans 2012:2).

The UN drug scheduling

The UN drug scheduling is a result of the observation of vast types of substance related problems. The fast development of technology which resulted in development of numerous new psychoactive drugs called for urgent scheduling of drugs (Hallam et al 2014:1). Drug scheduling is the classification of a substance within graded system of controls and restrictions (Hallam et al 2014:1). According to Hallam et al (2014:3), the first legally binding instrument of international substance control was the 1912 international opium convention (Hague convention), which was meant for effective supervision of opium use. The Hague convention sought for legitimate purposes of the manufacture, sell and use of morphine, cocaine and heroin (Hallam et al 2014:3). The first convention that used the principles of scheduling was the 1931 convention for limiting the manufacture and regulating the distribution of narcotic drugs-'the limitation convention' (Hallam et al 2014:3).

The international conventions on substance control are organised around two main principles. The first one aims at limiting access to controlled substances and to prevent their manufacturing, distribution, possession for pleasure, recreation and entertainment. The second one aims at ensuring the availability of essential drugs for medical and scientific purposes (Hallam et al 2014:1; UNDP 2015:10-12; Yans 2012:1). The availability of medically important substances such as narcotic drugs are especially important for many African countries including Ethiopia as lack of such drugs pose important health challenges in these countries (Yans 2012:2).

Currently there are three conventions on substance control at international level. One, 'The single convention on Narcotic Drugs of 1961' and two, 'the convention on psychotropic substances of 1971' both possessing provisional scheduling measures (Hallam et al 2014:2; UNDP 2015:4; Werb 2013:1214). While the single convention allows for both discretionary and mandatory provisional controls, the psychotropic

convention allows only discretionary scheduling (Hallam et al 2014:2; UNDP 2015:4). Moreover, the 1972 UN drug convention amends the 1961 single convention including care and treatment of drug addicted people (UNDP 2015:4). The third UN drug convention, the 1988 convention, applies schedules to precursors-direct precursors of psychotropic substances and their salts including ephedrine and Lysergic acid, and reagent solvents and their salts (Hallam et al 2014:4; UNDP 2015:4; Werb 2013:1214).

Common policies and strategies applied by most governments

The WHO ([Sa]:31) argues that if substances are legally available, they are more likely to be accepted or normalised in the general society. The prevalence of using substances like tobacco, caffeine, and alcohol which are legally available in many parts of the world is significantly higher than the legally restricted psychotropic medicines (WHO [Sa]:31). When the production, transportation, and sell of a substance is an important source of income for a society, its abuse will be normalised (WHO [Sa]:33). As a result, almost all countries have substance policies to reduce controlled substance related harms (Werb 2013:1214; WHO [Sa]:1).

Some substances are points of debate between public health policy makers and politicians. According to a literature synthesis conducted by Valente et al (2014:16), the legal status of khat is ambiguous in the world. Sheikh, El-setouhy, Yagoub, Alsanosy and Ahmed (2014:3) and Valente et al (2014:19) note that cathinone, a substance confirmed to present in khat leaves, was placed into schedule 1 of Controlled Substances Act of UK. Khat is currently illegal in many countries including USA, Canada, Ireland, France, Denmark, Germany, Sweden, and Norway (Al'Absi et al 2013:99; Khatib, Jarrar, Bizrah & Checinski 2013:142; Valente et al 2014:19). In July 2013, the UK has joined the rest of European countries and USA in banning khat (Groves, Hagel, Zhang, Kilpatrick, Levy, Marsolais, Lewinsohn, Sensen & Facchini 2015:28). Klein (2013:6) argues that the ban of khat in UK was against the recommendation of the expert community and rather was driven by political concerns of joining the allied countries, European Union (EU) and Group 8 countries. Though its enforcement is not strong enough, khat cultivation and trade is officially prohibited in Saudi Arabia (Mahfouz, Rahim, Solan, Makeen & Alsanosy 2015:8-9).

The experiences from specific countries

Depending on their contexts, countries have developed different strategies for mitigating the burden of substance abuse. In America, the Federal Food, Drug, and Cosmetic Act (FDCA) is the primary law regulating drug manufacture and distribution and its purpose is to protect the public health (Mello 2012:402). Since 2000, some states in America and other counties started to roll back sentences for low level drug offenses (Lofgren 2011:774-775). For example, by November 2012, the policy of ban and prohibition raised a question, and Washington and Colorado voted to legalise marijuana (Boettke et al 2013:1077; Faubion 2013:389). According to Faubion (2013:388), Portugal becomes the first country in Europe to abolish all criminal penalties for personal possession of substances. The current substance law in Uruguay stipulates in its article 30 that: ‘‘those who produce plants to extract drugs inducing psychological or physical dependence unlawfully shall be sentenced to prison for a period between 20 months and ten years.’’ (Faubion 2013:392). The current law in Uruguay does not punish possession and abuse of lighter drugs like marijuana (Faubion 2013:384). The government of Ethiopia has passed a proclamation that controls the production, import, export, distribution, and sell of narcotic and psychotropic drugs, and other psychoactive substances like tobacco. Article 18 of the proclamation states that: ‘‘Any person shall, to import, export, manufacture, distribute, store or possess narcotic drugs, psychotropic substances or precursor chemicals, be required to have a special permit issued by the executive organ.’’ (Ethiopia 2010:5174).

2.6 SUMMARY

The reviewed body of literature indicates that the determinant factors and the possible remedies to resolve the problem of substance abuse have been established in many parts of the globe. An ample amount of literature revealed the determinant factors of and possible intervention options to mitigate the consequences of substance abuse among university students at different levels including at intrapersonal, interpersonal, institutional, community, and societal levels. However, context specific studies that can show the local determinant factors and possible intervention options are required for tailoring interventions to specific population. In this regard, the body of literature that indicates specific determinant factors and

possible remedies for mitigating substance abuse among university students in Ethiopia in general and the target University in particular are scanty. This study has tried to fill these gaps.

2.7 CONCLUSION

This chapter has explored the literatures on substance abuse giving special emphasis to substance abuse among university students. The prevalence, distribution, and consequences of substance abuse are discussed. The chapter has applied the Social Ecological Model to scrutinise the determinant factors of and possible interventions to curve the problems related to substance abuse. The components of the Social Ecological Model, intrapersonal, interpersonal, community, institutional, and societal levels of factors and the intervention options thereof have been discussed thoroughly.

CHAPTER 3

RESEARCH DESIGN AND METHOD

3.1 INTRODUCTION

Chapter 2 has dealt with the literature review. This chapter will discuss the research design and research methods used in this study. The study is conducted in two phases. The first phase of the study is situational analysis where the researcher has employed a mixed methods research approach to investigate substance abuse among undergraduate university students at one of the universities in Ethiopia. The findings of phase one led to phase two of the study, which is development of guidelines for mitigating substance abuse among undergraduate university students at that university.

3.2 PHASE 1: SITUATIONAL ANALYSIS

Phase 1 presents the detail description of the paradigm, research approach, research design, and methodology of the study. The research procedures followed in both the quantitative and qualitative parts of the study including the research sites, population and sampling, data collection and analysis, the ethical considerations are discussed under subsequent heading in this section.

3.2.1 Research paradigm

According to Polit and Beck (2012:604), pragmatism researchers consider that it is the research question that should drive the inquiry. The inquiry in this study was driven by the research questions and the researcher used both quantitative and qualitative methods of research rather than sticking to the traditional positivist or naturalistic paradigms. Thus, the research paradigm followed in this study was pragmatism. Moreover, an ecological psychology, a qualitative research tradition which focuses on the influence of the environment on human behaviour (Polit & Beck 2012:491) was used to explain the influence of the environment on substance abuse among the target population.

3.2.2 Research approach

In this study, the researcher used both quantitative and qualitative approaches. According to Grove et al (2013:24), using both quantitative and qualitative approaches in single study is called mixed methods research. Creswell and Plano Clark (2011:1), Maree (2010:262), and Polit and Beck (2012:604) claim that mixed methods research is a third approach to research following quantitative and qualitative methods. Combining quantitative and qualitative strands in a study ensures the breadth and depth of understanding, and corroboration of the research problem (Creswell & Plano Clark 2011:4; Grove et al 2013:208; Maree 2010:51, 261-262; Plano Clark & Creswell 2010:299; Polit & Beck 2012:605, 625). Moreover, combining quantitative and qualitative research strands is helpful to offset the limitations of each strands. The limitation of a quantitative strand is lack of depth of information while that of the qualitative being lack of generalisability (Creswell & Plano-Clark 2011:9, 12; Grove et al 2013:208; Plano-Clark & Creswell 2010:300, 302). Maree (2010:263) also argues that using both quantitative and qualitative strands in a study will provide more elaborative approach to the research problem by providing a deeper understanding.

Polit and Beck (2012:604) put certain rationale for using mixed methods research. Some of these rationales are:

- Complementing the strengths of the two strands to obtain the best possible accurate evidence.
- To use both quantitative and qualitative tools wherever suitable to obtain the best information.
- Enhancing the validity of an inference by triangulating evidences from quantitative and qualitative strands.

It is for the aforementioned merits that the researcher chose mixed methods approach for this study-that is by triangulating the findings from both the quantitative and qualitative strands of the study, the researcher believes that the conclusions drawn based on the findings of the study become more valid.

3.2.3 Research design

Research design is a blue print that researchers follow during the research process (Grove et al 2013:43, 195; Plano-Clark & Creswell 2010:9, 70,166). The researcher used convergent parallel mixed methods design. When Creswell and Plano-Clark (2011:70) call it convergent parallel mixed methods design, Grove et al (2013:211), Plano-Clark and Creswell (2010:302), and Polit and Beck (2012:610) call it triangulation mixed methods design all of the authors refer to the same type of mixed methods design in which researchers collect and analyse both quantitative and qualitative data separately and mix them during interpretation. In convergent parallel mixed methods, the results from the two strands are compared to look for similarities and differences. In this study, the researcher employed a convergent parallel mixed methods design to collect quantitative and qualitative data from two different samples. Both the quantitative and qualitative strands were implemented concurrently with equal priority. However, the two strands were conducted separately during data collection and analysis and mixed during overall interpretation of the study. The researcher triangulated the results from the two strands in order to draw a corroborated conclusion about the research problem. The collection of both types of data at roughly the same time helped the researcher to manage his time efficiently. To avoid confusion in the presentation of the study process, each strand of the study will be presented separately as part 1 and part 2.

3.2.4 Part 1: Quantitative strand of the study

In this section, the researcher presents the research site, population, sampling, data collection, and analysis for quantitative strand of the study.

3.2.4.1 The research site

A researcher needs to determine the site of the research beforehand (Creswell & Plano-Clark 2011:172). According to Polit and Beck (2012:183), researchers should consider the presence and accessibility of people with the behaviour of interest when selecting the research site. According to Maree (2010:177), non-probability sampling can be implemented to select the site that is conveniently available and accessible to

the researcher. This researcher implemented a non-probability convenient sampling technique to select the research site for this research.

The site population for this study was one of the Universities in Ethiopia. The University is one of the 31 public universities in Ethiopia. The University was established in 2005 in East Ethiopia at Jijiga town (The Jigjiga University 2016:2). Jigjiga town is 628 km from Addis Ababa towards the east. Jijiga is the capital of Ethiopian Somali Region State. Ethiopian Somali Region is one of the 9 states of the Federal Democratic Republic of Ethiopia (FDRE). The researcher started this study following his observation of the behaviour of substance abuse among undergraduate students at the target University during his previous study. The other reason for selecting the University was the fact that the university is found at Ethiopian Somali region where the researcher resides which make it more accessible and convenient in terms of time and budget of the researcher.

The target University has eight colleges and 31 departments located in one campus. In the year 2016, the data collection period for this study, the university enrolled about 19,000 undergraduate students while 5, 055 students being enrolled as undergraduate students (The Jigjiga University 2016:1).

3.2.4.2 Population

Population, in the essence of research, refers to the group of people or objects consisting of the sampling units relevant to the research question (De Vos et al 2011:222; Grove et al 2013:351; Maree 2010:147). Plano-Clark and Creswell (2010:182), and Polit and Beck (2012:273) define population as a group of people or organisations about which the researcher is interested to learn. For part 1 of this research, the respondent population consisted of undergraduate students at the target University. There were1696 undergraduate students in graduating class in the year 2016 in the university. The list of all regular graduating students was provided to the researcher by the office of registrar as a sampling frame for the respondents. Table 3.1 shows the number of students in different field of study from which the sample was drawn.

Table 3.1 Summary of number of regular undergraduate students in graduating classes in the year 2016 at the target University

Programme (field of study)	Number of students in graduating class in the year 2016
College of Engineering and Technology	722
College of Computational and Natural Sciences	144
College of Medicine and Health Sciences	136
College of Veterinary Medicine	58
College of Dry Land and Agriculture	149
College of Business and Economics	219
College of Social Sciences	242
College of Education and Behavioural sciences	26
TOTAL	1696

Source: The target University: The Office of Registrar

The researcher did not focus on the entire population of the university but target population. Target population refers to a set of individuals who meet the inclusion criteria of the study and to whom the study is going to be generalised (Polit & Beck 2012:273). The target population for this study was being regular undergraduate student at graduating class at the target University in the year 2016, the period of data collection.

3.2.4.3 Sampling and sample size

Sampling is the process of determining the number of respondents, and their recruitment strategy (Creswell & Plano-Clark 2011:172). A sample is a subset of the population of interest which consists of predetermined criteria (Maree 2010:147). Plano-Clark and Creswell (2010:183) also add that a sample is a group of individuals that represent the population of interest.

In part 1 of this study, the researcher employed a probabilistic (simple random sampling) technique to select a representative sample of undergraduate students at the target Universities. The researcher used software known as research randomizer to randomly select respondents from the sample frame. The sample frame for part 1

of this study was the list of undergraduate students at the target University who were in graduating class at the time of data collection - that is in the year 2016.

To calculate the sample size for research questions 1 and 2 in part 1 of the study, the researcher used the formula $n = \frac{z^2_{\propto/2}(p(1-p))}{d^2}$. Considering 95% level of confidence which corresponds to $z_{\propto/2} = 1.96$ with a statistical power of 90%, p= 0.5 and 5% margin of error (d), the formula yields 384. Adding 10% of non-response rate, the total sample size was 422.

3.2.4.5 Inclusion and exclusion criteria for selecting respondents

The following inclusion and exclusion criteria were employed for selecting the study respondents.

Inclusion criteria

- *Being undergraduate student at the target University who attend his/her study at the day time in the regular academic period of Ethiopia - that is from September to June.*
- *Being undergraduate student at graduating class in the year 2016 at the target University.*
- *Being undergraduate student in the age range of 18 to 25 years.*

Exclusion criteria

- Respondents who fulfil the aforementioned inclusion criteria but decline to participate in the study.
- Respondents who fulfil the aforementioned inclusion criteria but could not be reached in 3 visits during the data collection.

3.2.4.6 Data collection

Data collection is the process of gathering data from selected study subjects (Grove et al 2013:523). While collecting data, researchers strive to determine how best to capture each variable's conceptual and theoretical definition and this determines the

ways data collection instruments are developed and used. This needs time and careful thought when coming to the development of quantitative data collection instrument (Polit & Beck 2012:293, 294). The quantitative data for this study was collected using a structured self-administered questionnaire.

3.2.4.6.1 Development of the instrument

Plano-Clark and Creswell (2010:188) define an instrument as a tool for measuring, observing, and documenting quantitative data. De Vos et al (2011:186) name the instrument that is useful for collecting facts and opinions from people who are informed on the particular issue as questionnaire. The researcher used structured self-report questionnaire to collect data.

Utilising this type of questionnaire was based on the following advantages mentioned by Polit and Beck (2012:305):

- Cost: self-report questionnaire enables to gather large amount of data with less cost.
- Anonymity: as the respondents fill the questionnaires privately, full anonymity is secured through self-report questionnaire. Anonymity has special importance for data with sensitive issues as in this study
- Interviewer bias: the absence of an interviewer in self-report questionnaire ensures full control of interviewer bias.

When developing the data collection instrument for part 1 of this study, the researcher considered the aforementioned features of a good instrument. The researcher used an instrument which consists of 3 sections.

Section I: Consists of 7 questions on demographic background of the respondents which were developed by the researcher.

Section II: Consists of 10 questions on substance abuse. These questions are adopted from United Nations (UN) global assessment programme on drug abuse (UN 2003: 84-89) except question 17. Question 17 was developed by the researcher based on Social Ecological Model to study the effect of interpersonal relation on the behaviour of substance use among university students. However, the researcher has

amended questions 13 through 17 by adding locally prevalent substances including khat and shisha and removing substances that are not known in the study area including: Tranquillizers, Amphetamines, Methamphetamines, Ecstasy, D-Lysergic Acid Dieethylamide (LSD), and Crack. The researcher has understood this from the preliminary literature review and the findings of pre-test.

Section III: Consists of 4 open ended questions based on the components of the Social Ecological Model which were developed by the researcher.

Permission was not necessary for the adoption of the items of the instrument as the sources of the items are in the public domain. Thus, the researcher only adopted the items with appropriate referencing.

Generally, the researcher recruited three experts as a panel of experts to evaluate the validity of the instrument. While two of the experts were lecturers at the target University who have published articles on substance abuse, one of the experts was from FMHACA who works in the area of control of addictive substances. The researcher sent the prospective experts a packet of materials consisting of the questionnaire, cover letter and content validity instrument. The content validity instrument contained instructions on how to assess the instrument's validity (see annexure O). The experts were oriented to rate each item along dimensions such as clarity of wording, relevance of the items to the construct, and appropriateness of the items to the target population. The experts were requested to use a four-point scale of relevance-that is 1= not relevant, 2 = somewhat relevant, 3 = quite relevant and 4 = highly relevant. Then, the researcher further refined the instrument based on the comments from the experts.

3.2.4.6.2 Piloting the data collection instrument

After developing data collection instrument, the researcher piloted it. According to Polit and Beck (2012:296), piloting the data collection instrument has the following benefits:

- Identifying parts of the instrument that are difficult to understand or misunderstood by respondents.

- Identifying questions that are objectionable or offensive to respondents.
- Assessing if the sequence of the questions is sensible.
- Evaluating training needs for data collectors.
- Determining if the measures yield data with sufficient variability.

To pilot the data collection instrument, the researcher administered the questionnaire to 40 undergraduate students at the target University, who were not included in the main data collection. The questionnaire was first administered to 15 freshman and 5 second year students at the target University. The students were selected using convenience sampling method. Five out of 20 questionnaires were incomplete during the pre-test. The researcher also conducted a focus group discussion with seven of the respondents. Issues such as the clarity of the questions, simplicity and time taken to complete the questionnaire were discussed. The researcher realised from the findings of the pre-test that question number 8, 10 and 12 were not clearly understood by some of the respondents and thus modified these items. Following the findings from the pre-test, the researcher changed the layout of the response sets of questions with boxes of the response options into table form. The researcher then administered the amended questionnaire to 20 other students by further explaining some of the difficult questions. At this time, 18 questionnaires were completed and returned. Focus group discussion with seven of the second group of respondents was conducted for the second time to see the effect of the changes made to the questions and the way of administration. At this time, all but one of the participants of the focus group discussion has understood the essence of the questions. The researcher has determined that on average the instrument takes 35 minutes to complete. The above process was done to ensure that the questionnaire adhere to the features of a good data collection instrument as specified by Maree (2010:159), and Polit and Beck (2012:306-307). These are: user friendliness, neat printing, appropriate font size, clear instructions, good quality paper and briefness.

3.2.4.6.3 Recruitment of respondents

Polit and Beck (2012:273) recommend that qualitative researchers need to develop sampling plan that specifies in advance how participants are to be selected. In this research, the researcher approached the students selected for the study in their

class rooms and dormitories. The researcher used male assistants to visit male students' dormitories and female assistants to visit female students' dormitories. The respondents were informed that they can fill the questionnaires at any time convenient for them.

To get the cooperation of the respondents, the researcher followed the following steps:

- Face to face recruitment to increase the likelihood of cooperation.
- Courtesy: being pleasant, courteous, and enthusiastic.
- Persistence: politely persuading people to cooperate. When a prospective respondent hesitated to cooperate at first attempt, the researcher and his assistants asked if they could come back at later time and this made the respondents to cooperate more.
- Explaining the benefits of the participation in the study to the society without exaggeration.
- Collecting the data at a time and location which is convenient for the respondents.
- Assuring the participants that the information they provide will remain confidential.

3.2.4.6.4 Administering the data collection instrument

In this study, the researcher made efforts to control the application of the study design for protecting the integrity of the study. The researcher trained the data collection assistants to apply the aforementioned suggestions. Besides these techniques, the researcher and his assistants informed the respondents that the data will be collected anonymously.

While selecting the research assistants, the researcher applied the following criteria: Prior experience of data collection.

- Congruency with sample characteristics: matching data collectors with respondents in terms of culture, gender, age etc.

- Unremarkable appearance: the data collectors should not appear at odd of style in terms of dressing and speaking.
- Personality: data collectors need to be pleasant, sociable and non-judgemental.

In this study, the researcher used two men (for male participants) and two women (for female participants) assistants to ensure the similarity of data collectors to the prospective respondents. The data collection assistants were hired from lecturers at Jigjiga Health Science College. Jigjiga Health Science College is owned by the Ethiopian Somali regional government and is situated at Jigjiga town. Moreover, the data collectors were trained to adopt the characteristics of the aforementioned good research personnel. The training was conducted for 2 days. Ethical issues such as the rights of the respondents, confidentiality, anonymity, and informed consent were covered in the training.

Besides the standardised instrument, standardised data collection requires providing the same direction and orientation for completing the instrument (Plano-Clark & Creswell 2010:192). The researcher and his data collection assistants provided all the respondents similar instructions and orientation of completing the instrument. This was ensured by preparing a printed short instruction guide that was provided to all respondents with the questionnaire.

Response rate

The total sample size of the quantitative element of the study was determined to be 422. Of this number, 11 students due to their age being above 25 years, 6 students due to declining and 3 students due to not being reached though repeated efforts did not participate in the study. Of those collected questionnaires, 8 were excluded from the analysis for being incomplete and incoherence of responses. This makes a response rate of 92.89% for most part of the questionnaire. However, only 296, 238, 173, and 283 respondents have responded to the last four open ended questions making the response rate to these questions 70.5%, 55.67%, 41.20%, and 67.40% respectively.

3.2.4.6.5 Data management and analysis

The whole purpose of data analysis is to draw conclusion about the results by explaining how the research questions are answered. Data analysis also involves comparing results with the findings of previous studies (Plano-Clark & Creswell 2010:10).

For confidentiality purpose, the researcher stored the questionnaires at a locked box where no one other than the researcher can access after the completion of data collection. Data clearing was done by screening each questionnaire by the researcher and two of his assistants looking for completeness and coherence of the data. As mentioned above, eight of the questionnaires were excluded from analysis for bearing incomplete and non-coherent responses. The questionnaires which were selected to be included in the analysis were then coded from 001 to 392 for the sake of referring when error occurs.

A descriptive statistics such as means and proportions were used to show the trends of the substance abuse and their associated factors among undergraduate students at the target University and findings were presented in tables to make them vividly seen. The researcher also applied a chi-square test for independence to indicate the association between the variables in the Social Ecological Model and substance abuse among the students. The chi-square test for independence was chosen as the collected data was categorical with multiple levels of categories. The SPSS version 17 was used for the statistical data analysis as mentioned earlier.

3.2.4.7 Data and design quality for quantitative approach (Part 1)

The worth of conducting a study lies on the truth that is reflected from its findings (Polit & Beck 2012:174). Quality concern in research pertains to two aspects namely the quality of the research design and the quality of the data collection instrument (Polit & Beck 2012:175). This section discusses the quality of the research design and data collection instruments in quantitative strand (part 1) of the study while the quality of the qualitative strand (part 2) will be discussed later in this chapter.

For a quantitative research, the quality concern relates to the quality of the scores from the instrument and the conclusions drawn (Creswell & Plano-Clark 2011:210). The two mostly used quality criteria in quantitative study are reliability and validity (Polit & Beck 2012:174).

3.2.4.7.1 Research design quality

The quality of research design is assessed against its reliability and validity. The following sections discuss the reliability and validity of the quantitative element of this study.

Reliability of research design

Reliability of a research design is the accuracy and consistency of an information obtained from a study (Polit & Beck 2012:175). Polit and Beck (2012:175) also used the term statistical reliability to refer to the probability that the results would hold with wider group than people who participated in the study. In this study, the researcher used strategies including selecting representative sample, training data collection assistants, and strict supervision and follow up during data collection.

Validity

The validity of a research design is the extent, to which its findings are sound, well-grounded, and unbiased (Polit & Beck 2012:175). Polit and Beck (2012:336) claim that validity is the property of an inference rather than that of a design. In this sense, validity of a research is the approximate truth of the inferences made from the findings; this is also called construct validity (Polit & Beck 2012:336). In this study, the researcher has employed strategies including clearing data for accuracy and consistency before data entry, re-checking the data entry into SPSS for ensuring correct data entry and discarding questionnaires with incomplete and/or inconsistent responses. Polit and Beck (2012:176, 312-313) are concerned with social desirability bias where people tend to report socially desirable responses. These authors suggest certain points to reduce social desirability bias such as encouraging frankness through provision of anonymity. In this study, the researcher used sealed boxes to collect the anonymous questionnaires to enhance the anonymity. The

sealed boxes for collecting the completed questionnaires were put at the exits of the class rooms and students' dormitories where the students can easily insert their completed questionnaires (see picture of boxes at appendix P).

Internal validity and external validity

Internal validity of a research design is concerned with the extent to which the independent variables are causally related with dependent variable (Creswell & Plano Clark 2011:211; Polit & Beck 2012:336). This is especially important for experimental design. External validity of a research design is the extent to which the findings from the sample can be generalised to the population. Polit and Beck (2012:180, 336) describe generalisability as the extent to which findings from a study apply to other situations or other groups. External validity is especially important for survey designs as the intent of a survey design is to generalise from a sample to the population of interest (Creswell & Plano-Clark 2011:211; Plano-Clark & Creswell 2010:193). External validity is ensured through random selection and retention of respondents (Creswell & Plano-Clark 2011:211; Plano-Clark & Creswell 2010:193). Part 1 of this study involves quantitative survey study that requires high standard of external validity. Being cognisant of this fact, this researcher used a probabilistic simple random sampling technique for selecting representative respondents. Moreover, the researcher paid due attention to retain the respondents reassuring that the anonymity and confidentiality of the responses will be maintained at all levels of the study as mentioned earlier. The researcher believes that the retention efforts have resulted in response rate of more than 90% for most of the questions.

3.2.4.7.2 Data gathering instrument quality

Though no measurement instrument is free of error, all measurement instruments strive to achieve capturing a construct in a way that is accurate, truthful, and sensitive (Polit & Beck 2012:328). An instrument is said to have good quality when it demonstrates good validity and reliability (Creswell & Plano-Clark 2011:178; De Vos et al 2011:172; Polit & Beck 2012:331, 336).

Reliability of data collection instrument

According to Polit and Beck (2012:331), De Vos et al (2011:177), and Grove et al (2013:523), an instrument is reliable when it produces less variation in repeated measurements. Creswell and Plano Clark (2011:211) and Plano-Clark and Creswell (2010:189) describe an instrument's reliability as its stability at several times and consistency across different conditions. The commonest way of checking reliability of an instrument is calculating its Cronbach's alpha. Cronbach's alpha measures the consistency of the scores from multiple questions with each other (Creswell & Plano-Clark 2011:211; Plano-Clark & Creswell 2010:190). A Cronbach's alpha of 0.7 or more is generally regarded as acceptable score (De Vos et al 2011:177; Maree 2010:216). The researcher adopted the items of the instruments from reliable sources and conducted a pre-test to measure the instrument's reliability using Cronbach's alpha (De Vos et al 2011:177; Maree 2010:216).

The instrument measures 5 underlying constructs of the study. These are smoking cigarette and shisha, alcohol drinking, khat chewing, drug abuse which includes marijuana, cocaine and heroin, and substance abuse among parents/relatives/friends of respondents. The reliability of the scales measuring these constructs is measured using Cronbach's alpha. The Cronbach's alpha values of the scales of the instrument are greater than 0.7 as indicated in Table 3.2.

Table 3.2: Reliability of the instrument based on the results of pre-test

Underlying construct of interest	Number of items measuring the construct	Cronbach's alpha value
smoking cigarette and shisha	10	0.802
alcohol drinking	6	0.865
khat chewing	4	0.814
Other substances abuse which include marijuana, cocaine and heroin	12	0.704
substance abuse among parents/relatives/friends of respondents	48	0.981

Validity

An instrument is said to be a valid measurement tool when it measures what it intends to measure (De Vos et al 2011:172-173; Grove et al 2013:393; Maree 2010:216; Polit & Beck 2012:175). According to Plano-Clark and Creswell (2010:189), an instrument is valid when its scores are meaningful and enables the researcher to draw a valid conclusion from the sample to the population. Methodologists name different types of validity. While content validity refers to the extent to which the instrument covers the complete content of the constructs of interest, construct validity concerns with how well the constructs covered by the instrument are measured (Creswell & Plano Clark 2011:210; Maree 2010:217). For part 1 of this study, the researcher solicited the review of experts in the field of the study to ensure the content and construct validity of the instrument as mentioned above. According to Polit and Beck (2012:359), there must be 100% agreement among raters when there are 4 or fewer expert raters. For this study, the number of raters was only 3 and thus repeated discussions and amendments on each item have been done until all the raters rate each item 3 or more (that is quite relevant). This makes both the Item Validity Index (I-CVI) and Scale Validity Index (S-CVI) of the data collection instrument 1. A scale is judged to be having excellent content validity if each item has an I-CVI of 0.78 and above and an S-CVI of 0.9 and above (Polit & Beck 2012:360).

3.2.5 The qualitative strand of the study (part 2)

Quoting the statements of Denzin and Lincoln, Creswell (2013:44) defines qualitative study as a study that involves an interpretive, naturalistic approach that explores things in their natural setting attempting to make sense of or interpret phenomena in terms of the meanings people bring to them. For part 2 of this study, the researcher employed qualitative study to explore aspects of substance abuse amongst undergraduate students at the target University. In this section, the researcher presents the research site, population, sampling, data collection, data analysis and the criteria utilised to ensure trustworthiness.

3.2.5.1 The research site

Site selection needs certain considerations. The primary considerations include the availability of people with the required information (Polit & Beck 2012:515). While choosing the sites for the qualitative part of this study, the researcher considered this point.

The research site for the qualitative part of this study was – one of the universities and one of the hospitals in Ethiopia. The hospital was chosen because most undergraduate students at the target University are referred to for medical and mental health consultations. The main units of the sources of the participants were:

- The students' clinic at the target University: this is a clinic inside the campus of the university where the students get primary health care.
- Selected offices of the target University: including the office of students' dean, the office of students' guidance and counselling, the office of gender affairs, the office of students Union, and the branch of HIV/AIDS Prevention and Control Office (HAPCO) at the target University.
- Department of psychiatry in the target Hospital: where the students are referred to for tertiary medical and mental care.

3.2.5.2 Study population

The population for part 2 of the study were staff who work at the students' clinic at the target University, psychiatric nurses at target Hospital, administrative and technical officials at the target University, and representatives of undergraduate students at the target University.

3.2.5.3 Participant sampling

Creswell (2013:155) and De Vos et al (2011:391-392) claim that selecting participants for qualitative study requires careful consideration of the information they have with the purpose of acquiring rich data. The researcher selected the participants for the qualitative strand of this study based on the information they have on the behaviour of substance abuse among university students. Participants for part 2 of this study were selected from the above mentioned categories of study

population The profiles and demographic characteristics of the participants are presented in chapter 5 (see table 5.1).

3.2.5.3.1 Inclusion and exclusion criteria for the qualitative strand

The following inclusion and exclusion criteria were employed for selecting the study participants.

Inclusion criteria:

- University staff who worked at departments related to students' services such as students' dean office, students' clinic and students' council for at least one year.
- Students at graduating class during the data collection at the target University who worked as students' representatives such as students' union for at least one year.
- Mental health professionals who worked at the mental health department at the target hospital for at least one year.

Exclusion criteria

- Participants who fulfil the aforementioned inclusion criteria but decline to participate in the study.
- Participants who fulfil the aforementioned inclusion criteria but could not be reached in 3 visits during the data collection.

In this study, almost all (except the students' representative) of the participants for the qualitative study were selected from a population different from that of the quantitative study. However, the two populations were related in that the population for the qualitative part were service providers of the population for the quantitative part (the undergraduate students at the target University). The researcher used non-probability purposive sampling technique to select individuals with rich information regarding substance abuse among undergraduate students at the target University. As the researcher knew only few individuals who may have rich information, snowballing technique was used to access other participants. Snow balling technique- is when the researcher gets information from the previous participants to select some of the information rich participants (De Vos et al 2011:393).

These individuals were also expected to have rich information regarding any regulations related to students' behaviour that the university may have. Selecting the individuals from different institutions was believed to provide the opportunity to see the problem from different angles so as to develop a corroborated and broader understanding (Plano-Clark & Creswell 2010:253). The individuals however have intra-group homogeneity.

A total of 16 individuals participated in the study. The sample was determined by data saturation. According to De Vos et al (2011:391, 350) and Grove et al (2013:268), data saturation, the point when new data begins to repeat what has already been found, determines the sample size for qualitative study. Data saturation was reached at the 13th participant but three more individuals were interviewed to get confirming and disconfirming information (Polit & Beck 2012:521). The profiles of the participants in the qualitative strand of this study will be described in detail in chapter 5 of this document (see Table 5.1).

3.2.5.4 Data collection

The primary method of data collection in qualitative research is by interviewing study participants (De Vos et al 2011:342). Qualitative data collection requires the researcher to maintain high level of trust with participants (Polit & Beck 2012:532, 533). The researcher was sensitive to his style of dressing, modes of speech, customs and schedule to win the trust of the participants. The researcher also made efforts not to take position during the point of argument or being affiliated to certain group.

3.2.5.4.1 Data collection instrument

The data collection instrument for the qualitative part of the study is the researcher. This is because the quality of the data obtained depends on the skill of the researcher as interviewer (De Vos et al 2011:342-343). While the quantitative researcher uses pre-established data collection instrument, the qualitative researcher uses forms with general emerging questions such as an interview protocol (Maree 2010:279; Plano-Clark & Creswell 2010:70). An interview schedule that contains the interview procedures, the questions to be asked and a space to

take notes of the responses of the interviewees was used for the qualitative data collection. The researcher prepared an interview protocol with general questions that was developed based on the literature review. The researcher has made use of the Social Ecological Model for developing the interview schedule so as to elicit deep information on matters related to substance abuse among undergraduate students at the target University from the participants. The researcher followed the following advices by De Vos et al (2011:343) to ensure an effective interview:

- Ask open-ended questions that do not predetermine the answers and allow room for participants to respond in their own terms.
- Ask clear and brief questions using words that make sense to the participants.
- Ask experience/behaviour questions before opinion/feelings questions.
- Sequence questions from general to specific, from broad to narrow.

The open ended questions asked to elicit the discussion for qualitative data collection are indicated in Annexure N

Pre-test in qualitative study

While pre-testing the data collection instrument is customary in quantitative research, doing a practice interview is helpful rather than entering into the main interview casually as this helps to identify unforeseen conditions such as problem with the recording machine or rapport creating that may emerge during the interview in qualitative data collection (Creswell 2013:165; De Vos et al 2011:395; Polit & Beck 2012:541). The researcher has conducted a practice interview with three individuals, from an institution other than the target University who meet the inclusion criteria before the actual interview. The interview was audio-taped. This has enabled him to identify problems such as the recorder machine was not recording properly, and estimating the realistic time needed for the actual interview. The estimated time to complete an interview during the pre-test was about one and half hours and this was found to be similar to the time taken during the actual interview.

Administering the data collection instrument

For qualitative study, text data is collected from people immersed in the setting of the phenomenon (Creswell & Plano Clark 2011:177; Maree 2010:259; Plano-Clark & Creswell 2010:251). The researcher asked broad, open-ended questions to allow the participants to share their views without any restriction. The interviews were conducted at the offices of each participant. The time schedules for the interviews were chosen by the participants and most of them gave the interview out of the office hours of the institutions. The researcher posed broad questions based on the prepared interview schedule. The researcher has probed for further information when he needed to enrich the data. While the main method of capturing the data was audio-taping using two tape records, the researcher also took notes while listening to the responses of the participants. The qualitative data for this study was collected from participants with face-to-face interview method. The qualitative data for this study was an audiotape of individual semi-structured face-to-face interviews. The interviews with 14 of the participants were conducted in Amharic language, the official language of the federal government of Ethiopia, while the interviews with 2 of the participants were conducted in English.

The researcher has probed the participants to get a depth of information at personal, interpersonal, community, institution and society level. Aspects of substance abuse related to intrapersonal, interpersonal, institution, and community level were resourced from the university administrative officers, health providers, and representatives of students.

3.2.5.4.2 Data management and analysis

Qualitative data analysis is non-numerical examination and interpretation of qualitative data for the purpose of discovering underlying meanings (De Vos et al 2011:399). Qualitative data report contains a voluminous, rich description of the research setting and participants besides the explanation of the phenomenon under investigation (Creswell 2013:182-183; De Vos et al 2011:398, 399; Grove et al 2013:281; Maree 2010:260). Once the interviews were over, the researcher stored the recorded tapes and field notes of the data in a locked box for confidentiality purpose. Before the beginning of the data analysis, the researcher has ensured its

coherence and clearness through listening to the tape-recorded data. Then the data analysis has begun through transcribing the data into text.

The data was transcribed verbatim-transcribing all spoken words including [pause] and [laughter] by a transcriber who is recruited by the researcher. Once data was transcribed, the researcher explored for its accuracy and sufficiency. The next step was translating the transcript from the local language (Amharic) into English language. Two bi-lingual experts helped the researcher in translating the Amharic version of the transcript into English. While one of the translators translated the transcript from Amharic to English, the second translator translated the English version back to Amharic. Translating the English version of the transcript back to Amharic helped in identifying meanings lost in the process of translation. Both the Amharic and English versions of the transcripts were shared with the interviewees for cross-checking if the transcript captured the essence of their ideas.

Before the emergence of themes, the researcher read and re-read the transcript several times. The transcript was then copied to the ATLAS.ti version 7 for analysis. The researcher used ATLAS.ti version 7 for developing themes, sub-themes, and categories. Once the themes, sub-themes, and categories were developed using the ATLAS.ti, the researcher continued with the write up of the analysis using the themes and sub-themes as headings and sub-headings. Most of the themes emerged from the data are congruent with the components of the Social Ecological Model. The researcher derived several sub-themes under each theme.

According to Creswell and Plano Clark (2011:208) and Plano-Clark and Creswell (2010:286), themes can be linked in two ways. These are:

- Layering themes: this is the process of linking themes by subsuming minor themes within major themes and then including the major themes within broader themes.
- Interconnecting the themes: this is the process of linking themes by connecting the themes to display a chronology or sequence of events to generate a theoretical or conceptual model.

In this study, the researcher followed the second way of connecting themes to align themes to the components of Social Ecological Model.

3.2.5.5 Data and design quality for qualitative research (Part 2)

While quantitative researchers strive for validity of evidence, qualitative researchers try to achieve the trustworthiness of a study (Polit & Beck 2012:175). The qualitative researchers Lincoln and Guba, repeatedly cited by authors, forward four important criteria for judging trustworthiness of qualitative study (Creswell 2013:24; De Vos et al 2011:419-421; Polit & Beck (2012:584). These are credibility, dependability, conformability, and transferability.

3.2.5.5.1 Credibility

Credibility refers to the confidence in the truth of the data. It is alternative to internal validity in quantitative study (De Vos et al 2011:419-420). It has two aspects, namely carrying out the study in a way that enhances the believability of the findings and demonstrating believability to the external readers (De Vos et al 2011:419-420; Polit & Beck 2012:585). In this study, the researcher conducted member checking to ensure the credibility of the study. Member checking is providing feedback to participants about emerging interpretations to obtain their reactions (Polit & Beck 2012:591). The researcher also audiotaped and transcribed verbatim as mentioned earlier.

3.2.5.5.2 Dependability

Analogous to reliability in quantitative study, dependability in qualitative study is concerned with whether the findings of the inquiry be repeated if it were replicated with the same or similar participants in the same or similar contexts (De Vos et al 2011:420-421; Polit & Beck 2012:585). In this study, the researcher documented the information carefully supplementing with repeated checking for the accuracy of the data to ensure dependability.

3.2.5.5.3 Confirmability

It is concerned with establishing that the data reflects the views of the participants and not figments of the inquirer's imagination. This criterion requires researchers to guard themselves against imposing their own bias and motivation (De Vos et al 2011:421; Polit & Beck 2012:585). Polit and Beck (2012:179, 534, 590) encourage researchers to critically reflect on their own values that can affect the data collection, analysis, and interpretation. This is because researchers' subjectivity is one of the factors that distort the findings of a study (Polit & Beck 2012:176). In this study, the researcher ensured confirmability through peer review and debriefing sessions. The researcher arranged a peer review and debriefing session (Polit & Beck 2012:594) that hosted experts in the field of the study from FMHACA. Furthermore, the researcher has provided the study results to experts in the field of substance control in Ethiopia for their validating views.

3.2.5.5.4 Transferability

Transferability refers to the applicability of findings to other settings or groups (De Vos et al 2011:420; Polit & Beck 2012:180, 525). Transferability requires thick description of the research setting, study participants, and the observed transactions (Polit & Beck 2012:525). De Vos et al (2011:420) suggest referring to theoretical framework showing how the analysis and interpretation was guided by models as another way of enhancing transferability in qualitative study. In this study, the researcher provided a thick description of the data and the context of the setting to ensure transferability (see table 5.1). Moreover, the researcher used the Social Ecological Model as guiding tool during the analysis and interpretation of the qualitative data.

Polit and Beck (2012:586, 590-594) point out some other strategies to enhance quality in qualitative study. Some of these strategies are:

- Reflexivity: as stated earlier, this is about self-interrogation by which researcher attend to their effect on the collection, analysis, and interpretation of data. Researchers can use reflexive notes to record their thoughts (Polit & Beck

2012:589). In this study, the researcher used reflexive notes to critically evaluate the effect of his values during data collection, analysis, and interpretation.

- Data and method triangulation: this is about using multiple references to draw conclusion to overcome the intrinsic bias (Polit & Beck 2012:590). In this study, the researcher triangulated the information from three different groups of participants with different backgrounds. Moreover, the information from the qualitative strand was triangulated with the information from the quantitative strand.
- Peer review and debriefing: this is about subjecting the data to external reviewers who are experienced in qualitative data analysis and/or the field of study (Polit & Beck 2012:594). In this study, the researcher sought the reviews of people experienced in qualitative data analysis. Besides the supervisors of the researcher, two scholars with experience of qualitative study who work for the Jigjiga University gave their view about the qualitative data analysis of this study.
- Comprehensive and vivid recording of information: qualitative researchers are encouraged to vividly record raw data, data process products, reflexive notes, and data reconstruction products (Polit & Beck 2012:591). In this study, the records of audiotaped raw data, the reflexive notes, and data analysis products are at the hands of the researcher.

3.3 DATA AND DESIGN QUALITY FOR MIXED METHODS RESEARCH

The quality of mixed methods study should encompass the quality of both quantitative and qualitative strands. Instead of validity (as in quantitative study) or trustworthiness (as in qualitative study), Polit and Beck (2012:625) prefer to use the term inference quality and inference transferability. Inference quality of mixed methods study refers to the believability and accuracy of the conclusions while inference transferability refers to the applicability of the findings of a mixed methods study on other groups and contexts (Polit & Beck 2012:625). In this study, the researcher strived to enhance the inference quality through depth exploration of information and the inference transferability through selecting representative samples.

3.4 ETHICAL CONSIDERATIONS

Ethical practices in research start with identification of the research topic and continue through publication of the study (Grove et al 2013:159). Ethics in research requires respect for individual participants and institutions (Plano-Clark & Creswell 2010:191). The following points discuss the ethical standards followed by the researcher while dealing with the research participants and sites of this study.

3.4.1 Participants/Human data sources

Grove et al (2013:162) and, Polit and Beck (2012:152) identify some human rights that require protection in research including the right to self-determination, the right to protection from discomfort and harm, the right to confidentiality, and the right to fair treatment or justice. These ethical principles are succinctly briefed under the following sub-headings.

3.4.1.1 The right to self-determination

Researchers need to treat prospective subjects as autonomous agents by informing them about a proposed study and allowing them to voluntarily choose to participate or not (De Vos et al 2011:116; Grove et al 2013:162; Plano-Clark & Creswell 2010:192; Polit & Beck 2012:154, 157-158). Researchers have the obligation of seeking informed consent from participants by providing information regarding the study without deception (De Vos et al 2011:116-117; Creswell & Plano-Clark 2011:176). The researcher informed the participants that they were selected randomly and their participation was fully voluntary, and that they could with draw from the study if they needed to. He also informed the participants the estimated period of time required to complete the questionnaire (Polit & Beck 2012:158). The participants of the qualitative part of the study were also informed about the purpose of tape-recording the interviews and tape recording was done based on the participants' informed consent. Moreover, the researcher avoided to recruit research assistants from lecturers of the university to ensure the full voluntariness of the respondents.

3.4.1.2 The right to protection from discomfort and harm

Researchers must protect human participants from any kind of harm including physical, emotional, economical, and social aspects (De Vos et al 2011:115; Grove et al 2013:174; Polit & Beck 2012:152-153, 156). Creswell and Plano-Clark (2011:176) warn researchers to protect the rights and safety of individual participants at all times. Moreover, the potential benefit to the participants must outweigh the potential risks (Grove et al 2013:174; Plano-Clark & Creswell 2010:192; Polit & Beck 2012:152). Emotional and social discomforts related to answering certain questions and the exhaustion and time spent in participating in a study can be taken as temporary discomfort. In this study, the researcher used sealed boxes in which respondents put the filled questionnaires so that they become confident that their responses are kept private. To avoid discomfort related to time, all data collection periods were set by the respondents and participants.

3.4.1.3 The right to confidentiality

The privacy and confidentiality of participants must be protected at all times (De Vos et al 2011:119). According to Grove et al (2013:171-172) and Polit and Beck (2012:162), anonymity is the most secured means of protecting confidentiality. Anonymity exists when the subject's identity cannot be linked with his or her individual responses (Grove et al 2013:172). De Vos et al (2011:119) remind researchers to ensure the privacy of subjects and inform them of the steps to be taken to ensure privacy. For this study, the researcher collected the quantitative data through anonymous questionnaire. No identity of any respondent was linked to the questionnaire he/she filled. As this study involves sensitive issues like the abuse of legally prohibited substances, the fact that the participant was willing to participate and complete the questionnaire was regarded as securing informed consent. This is to prevent any confidentiality break through the signed forms. De Vos et al (2011:119) remind researchers to ensure the privacy of subjects and inform them the steps to be taken to ensure privacy. However, participants of the qualitative element signed an informed consent form as they did not share sensitive personal information. Moreover, the researcher collected the data at times convenient to the respondents so as not to compete with their study or working time.

3.4.1.4 The right to fair treatment or justice

Fair treatment in the essence of research means that participant selection should be based on study requirements and not on a group's vulnerability (Grove et al 2013:173; Polit & Beck 2012:155). The principle of justice also imposes duties to neither neglect nor discriminate against individuals or groups who may benefit from research (Grove et al 2013:173; Polit & Beck 2012:155). Researchers also need to treat people who decline to participate in an un-prejudicial manner (Polit & Beck 2012:155). In this research, the respondents for the quantitative part were selected using simple random sampling that gives equal chance of being selected to each respondent. The participants of the qualitative part were also selected based on study requirements.

3.4.2 Institution/Site

Plano-Clark and Creswell (2010:9) indicate that researchers must obtain permission from all concerned bodies before data collection. Polit and Beck (2012:183) suggest enlisting the cooperation of responsible officers candidly and congenially is important for protecting institutions' right during data collection. Creswell and Plano Clark (2011:175, 176), and Plano-Clark and Creswell (2010:192) advise researchers also to seek permission from institutions in which the data collection is undertaken. Most institutions have institutional review boards which reviews the proposal of a research before granting permission and securing permission from such boards is mandatory for researchers (Creswell & Plano-Clark 2011:176; Plano-Clark & Creswell 2010:192). All institutions related to this study in one or other ways were treated as autonomous agents. Complying with this principle, the researcher first obtained ethical clearance from the University of South Africa (UNISA) and then from the target University and the target Hospital prior to the execution of the study (see annexes A, C, and E). Anonymity of the institutions was maintained in this study and the terms 'target university' or 'one of the universities in Ethiopia' and 'target hospital' or 'one of the hospitals in Ethiopia' were used to refer to the institutions.

3.4.3 Scientific Integrity of the Research

Research misconduct such as fabrication, falsification, and plagiarism jeopardise research integrity. The researcher refrained from any sort of research misconduct mentioned above and gave due credit to any sources consulted by referencing and listing according to UNISA Department of Health Studies' requirement (UNISA 2015:25).

3.4.4 Domain Specific Ethical Issues

As mentioned above, as this study investigated culturally sensitive social behaviours-that is substance abuse. The researcher took special measure to protect the confidentiality of the respondents; thus, no paper based questionnaire bore the identity of any respondent. Furthermore, the respondents put the completed questionnaire in a sealed box so as to enhance their confident regarding the confidentiality (see annexure O). This study also includes qualitative study which raises special ethical issues as it involves face-to-face interview (Plano-Clark & Creswell 2010:251, 252). The researcher strictly followed procedures to protect the confidentiality of the participants of the qualitative strand of the study. The researcher did not use participants' identity to refer to their response; instead, he used general references like 'participants' or 'a participant'. The completed questionnaires, the audio-taped interviews, and the transcribed texts are kept in a locked cabinet. Once the research is completed, all the documents containing the raw data will be removed paying due consideration to protecting any information leakage.

3.5 PHASE 2: DEVELOPMENT OF THE GUIDELINES

Phase 2 presents the detail description of the development of the guidelines for mitigating the problem of substance abuse among students. The processes followed in developing the guidelines and the validation of the guidelines are discussed as follows.

3.5.1 The process of developing the guidelines

The guidelines were developed based on the findings of the research, thorough critical review of the existing literature, and inputs from experts in the field of control of substance abuse, the students' health providers, and the students' representative at the target University. Moreover, the Social, Ecological Model, the theoretical framework used in this study, guided the development of the guidelines. Therefore, the contents of the guidelines are presented based on the five components of the Social Ecological Model which are: dimensions at intrapersonal level, dimensions at interpersonal level, dimensions at institutional level, dimensions at community level, and dimensions at societal level (see annexure O).

The findings of the research are referred under each sub-heading of the guidelines. Specific action points are then drawn to close the loopholes identified by the research findings. Besides using the findings of the study and the critical review of literature, the researcher has used his intuitive insight to draw the action points of the guidelines.

3.5.2 Integration of the research findings into the theoretical framework for the development of the guidelines

As stated above, this section provides the depth description of the integration of the research findings into the theoretical framework to develop guidelines that can be used to mitigate the burden of substance abuse among regular undergraduate university students. The components of the Social Ecological Model are used to define the structure of the guidelines. Table 7.1 presents the components of the model, the findings from both the qualitative and quantitative strands of the research, and the recommendations and guidelines based of the findings.

3.5.3 Validation of the guidelines

Guidelines are developed to promote effective management of a health condition of interest (Grove et al 2013:496-498). Guidelines are usually examined for their usefulness in clinical practice, their impact on health policy, and their cost-effectiveness (Grove et al 2013:498). Consultants, researchers, and experts in the

field of interest are usually asked to review guidelines and provide inputs; then, based on the experts' critiques, guidelines are revised and packaged for distribution to health care professionals (Grove et al 2013:498). The Agency for Healthcare Research and Quality in America requires certain criteria that guidelines must meet to be used for practice. Three of these criteria are (Grove et al 2013:499):

- The guidelines must contain systematically developed recommendations, strategies, or other information to assist health care decision making in specific clinical circumstances.
- The guidelines development process must have included a verifiable systematic literature search and review of existing evidence published in peer-reviewed journals.
- The guidelines must be current and the most recent version must be used.

The Grove et al (2013:500) model for implementing evidence-based guidelines in practice also suggests that the quality and usefulness of guidelines must be assessed using criteria that include:

- The significance of the health care problem.
- The strength of the research evidence.
- The link to national standards.
- The cost effectiveness of using the guidelines in practice.

The aforementioned guidelines have been subjected to external peer reviewers for validation purpose. Five experts in the field of substance control from FMHACA, three mental health professionals working in the mental health unit of the target Hospital in Jigjiga, three mental health professionals working in the mental health department of Hiwot Fana Hospital in Harar, three university administrative officers who work in the students' service offices at the target University, and three students' representative from the target University were solicited by the researcher to evaluate the guidelines. While three of the experts in the field of substance control were provided with the hard copy of the guideline, the rest of the reviewers were provided with the soft copy through e-mail attachments. The experts and professionals who participated in the evaluation of the aforementioned guidelines were oriented to evaluate the guidelines against a set of criteria including the scientific soundness of

the guidelines, the currency of the guidelines, the link of the guidelines to national standards, and the cost effectiveness of using the guidelines in practice

Each reviewer was given three weeks to forward his/her feedbacks. All of the reviewers but two of them have forwarded their inputs for the guidelines to the researcher. Two of the reviewers did not return the copies of the guidelines. The feedbacks were provided in three ways namely: face-to-face discussions, e-mail attachment of written feedback and through telephone calls. Eight of the reviewers provided their feedback through e-mail, four of them through telephone call, and face-to-face discussions were conducted with the remaining three reviewers.

All of the reviewers indicated that the guidelines are applicable in Ethiopia, they are cost effective, and the research evidence on which the guidelines were based was strong. Some of the reviewers suggested that similar but contextual studies have to be conducted at other universities and this recommendation was included on the recommendation for further study section of the thesis. The other recommendation was related to the technical presentation of the guidelines such as re-arranging the headings but the researcher has followed the components of the Social Ecological Model for the sake of coherence and the reviewers have finally agreed with the researcher on this aspect. Finally the researcher has sent the final document of the guidelines to the experts.

3.6 CONCLUSION

This chapter has discussed the research design and methods used in this study. The details of the research methods: sampling, data collection, data and design quality, data collection and management were discussed under phase 1 of the chapter. The processes followed in the development of the guidelines were discussed under phase 2 of the chapter. The ethical considerations, followed in this study were also discussed subsequently. The next chapter presents the findings and discussions of the quantitative part of the study.

CHAPTER 4

PRESENTATION AND DISCUSSION OF THE RESULTS FROM QUANTITATIVE DATA (PART 1)

4.1 INTRODUCTION

Chapter 3 has presented the research approaches, designs, and methodologies followed in both the quantitative and qualitative strands of the study. It also presented the process followed for model development. This chapter presents the results and discussion of the quantitative data of the study. The findings of the quantitative part of the study will be presented in two main parts; part one presented the demographic characteristics of the respondents while part two presented the findings pertaining to the main research objectives- substance abuse among the respondents.

4.2 DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

The main demographic characteristics of the respondents in this section are age, sex, religion, area and region of growth, marital status, and the academic performance in terms of the grade average point of the respondents. According to the findings of the literature review and the components of the Social Ecological Model, these demographic characteristics are determinants for substance abuse.

4.2.1 Age

One of the inclusion criteria of the study was age of 18 to 25 years. The mean and standard deviation of the age of respondents was 22.95 and 1.45 respectively while the minimum and maximum being 19 and 25 respectively.

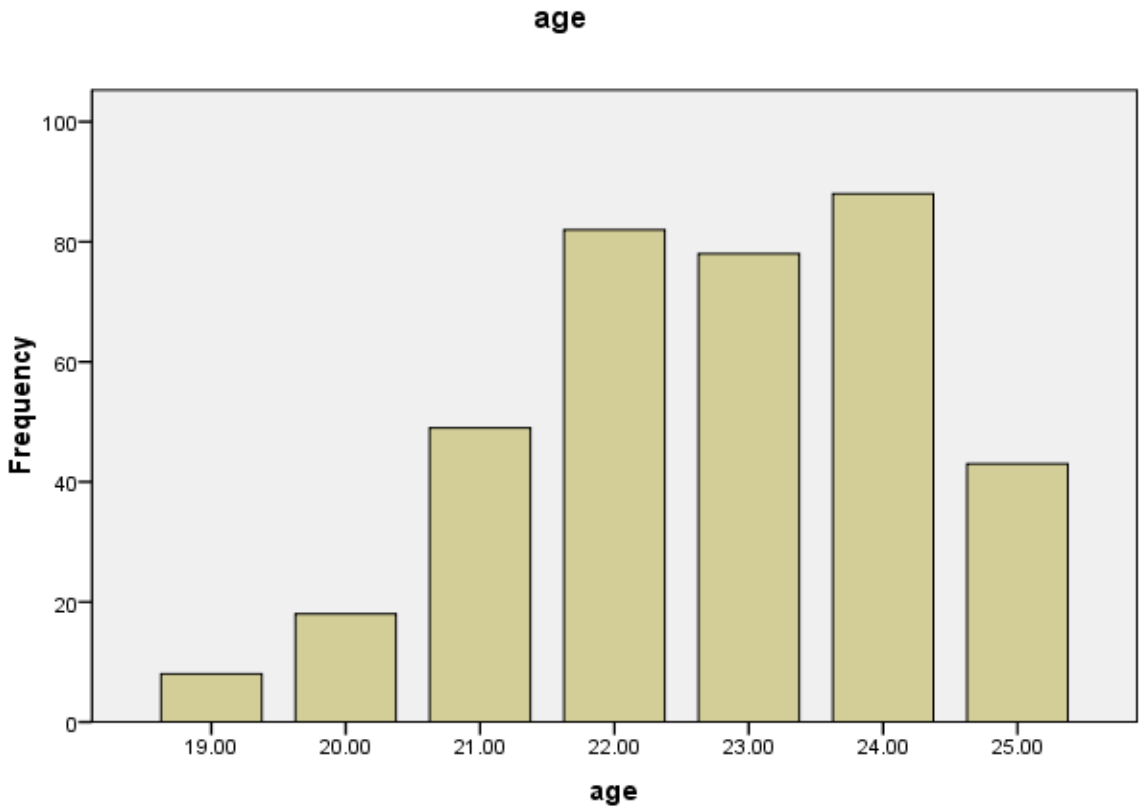

Figure 4.1 Age of respondents (n=392)

The age composition of the respondents was close to the age composition of students at graduating class in the same university in 2013 which shows a mean and standard deviation of 22.76 and 2.3 years respectively (Mavhandu-Mudzusi & Asgedom 2016:181). Age is important factor in substance abuse because young people are at a turmoil behaviour which is characterised by experimentation (Bannink et al 2015:2; Lee et al 2010:1462; NIDA 2014:3-4). The findings of the present study indicate that the undergraduate students at the university are at young age which increases their vulnerability to substance abuse.

4.2.2 Sex

Table 4.1 shows that of 392 respondents who completed the questionnaires, 260 (66.3%) were male and 132 (33.7%) were female students.

TABLE 4.1: **Sex composition of respondents (n=392)**

Sex	Frequency	Percent
Male	260	66.30
Female	132	33.70

The proportion of female respondents in this study is higher than the proportion of female participants in another study in the same university in 2013 which comprised only 14.50% (Mavhandu-Mudzusi & Asgedom 2016:181). The gender proportion in this study was opposite to the proportion found in a study on Canadian university students conducted by Jurcik et al (2013:256-257) that reports 65.18% of the respondents were females. The low proportion of female respondents compared to male is not surprising as the gender imbalance in tertiary education is still rampant in the country.

4.2.3 Religion

Of the total 392 respondents, 9 (2.30%) did not revealed their religious affiliation. Of the 383 respondents who revealed their religious affiliation, the majority, 174 (45.43%) were Orthodox Christian followers, followed by 144 (37.60%) of Muslims. Wakefeta, Oromo's traditional religion, was followed by only few - 3 (0.78%) of respondents.

TABLE 4.2: Religious affiliation of respondents (n=383)

Religion	Frequency	Percent
Orthodox Christian	174	45.43
Protestant	55	14.36
Roman Catholic	7	1.83
Muslim	144	37.60
Wakefeta	3	0.78

The proportion of Orthodox Christian followers in this study is close to the proportion reported in a study among undergraduate students at Hawassa University while the proportion of Muslim students in this study is higher than the proportion reported in the study among undergraduate students at Hawassa University which showed Orthodox Christian followers comprising of 59.71% and Muslim followers comprising of 10.58% (Kassa & Deyno 2014:3). Gebrehanna et al (2014:6) reported a higher proportion (81.8%) of Orthodox Christian followers in their study on khat abuse at

Bahir Dar University, North Ethiopia. The higher proportion of Muslim students in the target University is not surprising as the university is found at Muslim majority town.

4.2.4 Area of growth

Table 4.3 shows that (n=135; 36.49%) and (n=110; 29.73%) of respondents have grown in small town and urban areas respectively. While (n=125; 33.78%) of respondents came from rural area, (n=22; 5.6%) of respondents did not reveal their area of growth.

Table 4.3: Area of growth (n=370)

Area of growth	Frequency	Percent
Urban	110	29.73
Small town	135	36.49
Rural	125	33.78

The proportion of respondents from urban area is higher compared to the proportion of the population of the country residing in urban areas which comprises of only 16% (Central Statistical Agency [CSA] [Ethiopia] & International Coach Federation [ICF] International Calverton [Maryland USA] 2012:3). This indicates that the rural population of the country has less access to education compared to the urban population and thus substance abuse among rural youths needs to be addressed out of school too.

4.2.5 Region of growth

Table 4.4 shows the region of growth of respondents. A substantial proportion, 114 (30%) of respondents were from east Ethiopia and this is not surprising as the university is located in this region. Seventy eight; 20.53% and (n=73; 19.21%) of the respondents were from north and south Ethiopia respectively. West and central Ethiopia, Addis Ababa, Harar, and Dire Dawa contribute only to (n=39; 10.26%), (n=25; 6.58%), (n=23; 6.05%), (n=13; 3.42%) and (n=15; 3.95%) of respondents respectively.

TABLE 4.4: Region of growth (n=380)

Region	Frequency	Percent
North Ethiopia	78	20.53
South Ethiopia	73	19.21
East Ethiopia	114	30.00
West Ethiopia	39	10.26
Central Ethiopia	25	6.58
Harar	13	3.42
Addis Ababa	23	6.05
Dire Dawa	15	3.95

Regions where students come from determine the culture of their community which in turn influences the behaviour of substance abuse. Gil-Lacruz and Gil-Lacruz (2013:332) reflect this view while studying the impact of culture, norms, and traditions on individuals' behaviour. The results of this study indicate that a higher proportion of undergraduate students at the target University are from eastern Ethiopia where khat chewing and cigarette smoking is rampant.

4.2.6 Marital status

Table 4.5 shows that majority of respondents, (n=321; 87.70%) have never been married while (n=35; 9.56%) and (n=6; 1.64%) were married and separated respectively.

TABLE 4.5: Marital status (n=366)

Marital status	Frequency	Percent
Married	35	9.56
Never Married	321	87.70
Separated	6	1.64
Divorced	1	0.30
Widowed/widower	3	0.82

The findings regarding the marital status of the respondents are consistent with the report of a previous study at the target University which shows 88.70% of male and 86.67% of female respondents have never been married (Mavhandu-Mudzusi & Asgedom 2016:181). This result is also similar to the findings of a study conducted by Salameh et al (2014:205) among Lebanese university students that reports more than 95% of the respondents were single. Being single is expected in this population as majority of them are yet dependent on their family and thus the impact of marriage on substance abuse in this population is difficult to analyse.

4.2.7 Respondents' Grade Point Average

Three hundred forty three (343) respondents reported their last Grade Point Average while the remaining 49 respondents did not reveal their Grade Point Average. The average last Grade Point Average for those who revealed was 2.99 while the maximum and minimum Grade Point Average being 4.00 and 1.00 respectively.

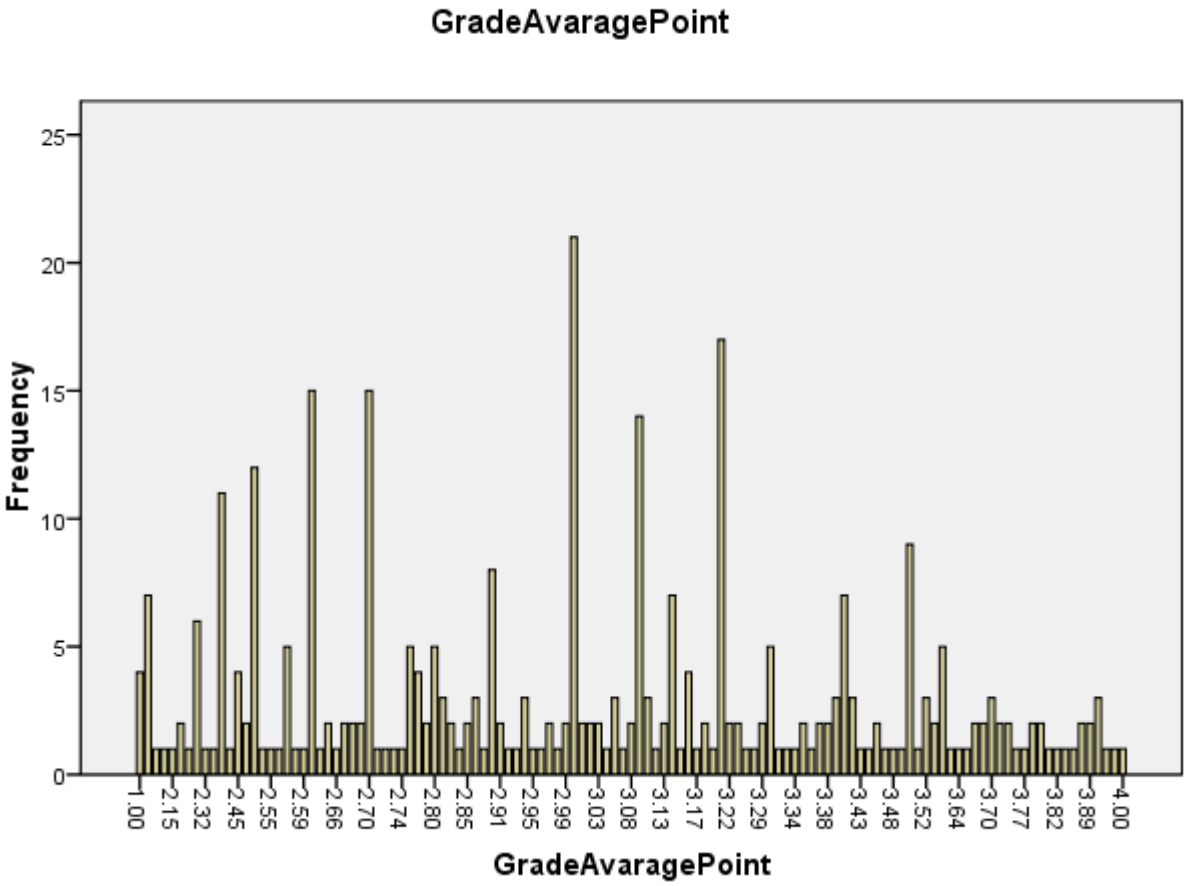

Figure 4.2 Respondents' Grade Point Average (n=343)

Academic performance as a determinant factor for substance abuse among university students is evidently seen in previous literatures. In Germany, students have shown higher tendency of using substances for cognitive enhancement (Maier et al 2013:6-7). Using substance for academic performance was also evidently seen in this study as indicated in section 4.3.1.10.

4.3 FINDINGS PERTAINING TO THE MAIN RESEARCH OBJECTIVES

Research findings that aimed at addressing the main research objectives were presented in two main parts - the descriptive and the correlational findings. While the descriptive part of the findings tried to present all the items in the questionnaire one by one, the correlational findings focused on substances that show prevalence that could show the association with the components of Social Ecological Model.

4.3.1 Descriptive findings of the quantitative data

The descriptive part of the findings described the prevalence of the substance abuse among undergraduate students at the target University. The presentation follows the sequence of the substances as presented in the data collection tool.

4.3.1.1 Hearing of certain types of substances

Table 4.6 indicates that most of respondents were not knowledgeable about most of the addictive substances. Of the listed addictive substances, marijuana is the most heard of with (n=250; 63.94%) of respondents reported that they heard about it. Ecstasy is the least know addictive substance with only (n=8; 2.05%) of respondents heard about. Relevin is not a real substance but included to test if respondents understand the types of substances and (n=10; 2.56%) of respondents reported that they heard of relevin.

TABLE 4.6: Respondents' knowledge of different drugs (n=391)

Type of substance		Frequency	Percent
Tranquillizers or sedatives	Yes	48	12.28
	No	343	87.72
Marijuana (grass, pot) or hashish (hash, hash oil)	Yes	250	63.94
	No	141	36.01
Amphetamines (uppers, pep pills, bennies, speed)	Yes	35	8.95
	No	356	91.05
Ecstasy	Yes	8	2.05
	No	383	97.95
Relevin	Yes	10	2.56
	No	381	97.44
Crack	Yes	29	7.42
	No	362	92.58
Cocaine	Yes	123	31.45
	No	268	68.54
Heroin	Yes	106	27.11
	No	285	72.89

Though substance abuse among Ethiopian university students is common, university students in Ethiopia are not familiar with most of the hard substances such as heroin, cocaine, and ecstasy. For example, Kassa et al (2014:3) reported that very few students have heard about ecstasy. The findings of this study also show that most of the respondents were naive to most of the hard substances including cocaine and heroin.

4.3.1.2 The prevalence of cigarette smoking

Table 4.7 shows that majority, (n=324; 82.70%) of respondents have never smoked cigarette while (n=36; 9.20%) and (n=32; 8.20%) smoked cigarette 1 to 39 times and more than 39 times in their lifetime respectively. The table also reveals that only (n=42; 10.70%) and (n=17; 4.30%) of respondents reported that they smoked cigarette 1 to 39 times and more than 39 times within 12 months of the study period respectively. Moreover, only (n=49; 12.50%) of respondents reported that they smoked cigarettes 1 to 39 times and none of respondents reported that they smoked more than 39 times within 30 days of the study period.

TABLE 4.7: The prevalence of smoking (n=392)

Number of occasions		Frequency	Percent
Lifetime smoking	0	324	82.70
	1-39 times	36	9.20
	>39 times	32	8.20
Smoking within 12 months of the study period	0	333	84.90
	1-39 times	42	10.70
	>39 times	17	4.30
Smoking within 30 days of the study period	0	343	87.50
	1-39 times	49	12.50
	>39 times	0	0

The lifetime prevalence of smoking cigarette (17.40%) in this study is less than the prevalence of smoking (61.30%) among students at Teran University, Iran (Jafari et al 2011:106). However, the prevalence of smoking in this study is higher than the prevalence of smoking (7%) in the general population in Ethiopia (CSA [Ethiopia] & ICF International Calverton [Maryland USA] 2012:51). The lifetime prevalence of smoking in this study is also higher than the prevalence (9.50%) among undergraduate students at Axum University (Gebreslassie et al 2013:5). The prevalence of smoking within 30 days of the study period (12.50%) is comparable with the report by Kassa et al (2014:3) that shows close to 12% of students at Hawassa University, were cigarette smokers during the study period but slightly higher than the report by Gebreslassie et al (2013:5) that shows a prevalence of 9.30% among undergraduate students at Axum University during the study period. The proximity of the frequency of lifetime and 12 months smoking may show that most of respondents have started smoking while they joined the university or those who started smoking before they join the university still continue to smoke.

4.3.1.3 The prevalence of alcohol drinking

Table 4.8 shows that majority, (n=229; 58.40%) of respondents have never drank alcohol while (n=99; 25.30%) and (n=64; 16.30%) drank alcohol 1 to 39 times and more than 39 times in their lifetime respectively. One hundred and fifteen; 29.30% and only (n=13; 3.30%) of respondents reported that they drank alcohol 1 to 39 times and more than 39 times within 12 months respectively. Eighty two (82); 20.90% of respondents reported that they drank alcohol 1 to 39 times within 30 days of the study period.

TABLE 4.8: The prevalence of alcohol drinking (n= 392)

Number of occasions of alcohol drinking		Frequency	Percent
Lifetime alcohol drinking	0	229	58.40
	1-39 times	99	25.30
	>39 times	64	16.30
Alcohol drinking within 12 months of the study period	0	264	67.30
	1-39 times	115	29.30
	>39 times	13	3.30
Alcohol drinking within 30 days of the study period	0	304	77.60
	1-39 times	82	20.90
	>39 times	6	1.50

The lifetime prevalence (41.60%) of alcohol drinking in this university is comparable with the prevalence (40%) of alcohol drinking within 30 days of the study period among U.S university students (Park et al 2014:517). In USA, alcohol is primary problem of substance abuse to university students compared to non-university student counterparts (Sahker et al 2015:120). The prevalence of lifetime alcohol drinking in this study is slightly lower than the prevalence of lifetime alcohol drinking (53% for men and 45% for women) among Ethiopian adult population (CSA [Ethiopia] & ICF International Calverton [Maryland, USA] 2012:52). The prevalence of alcohol drinking within 12 months of the study period (32.60%) in this study is less than the prevalence (40.80%) within 12 months of the study period among students at Hawassa University (Kassa et al 2014:3). The prevalence of alcohol abuse within 30 days of the study period (22.40%) in this study is also less than the prevalence (32.80%) among students at Axum University (Gebreslassie et al 2013:5). The higher prevalence of alcohol use at Axum University may be attributable to the higher prevalence of alcohol drinking among communities in Tigray regional state (CSA [Ethiopia] & ICF International Calverton [Maryland, USA] 2012:52) where the university is located. Similar to the cigarette smoking, the proximity of the frequency of lifetime and 12 months alcohol drinking may indicate that most of respondents have started alcohol drinking while they joined the university or those who started alcohol drinking before they join the university still continue to drink alcohol.

4.3.1.4 The prevalence of khat chewing

Table 4.9 shows that majority, (n=263; 67.10%) of respondents have never chewed khat while (n=76; 19.40%) and (n=53; 13.50%) chewed khat 1 to 39 times and more than 39 times in their lifetime respectively. Table 4.9 also reveals that (n=82; 20.90%) and only (n=12; 3.10%) of respondents reported that they chewed khat 1 to 39 times and more than 39 times respectively within 30 days of the study period.

TABLE 4.9: The prevalence of khat chewing (n = 392)

Number of occasions		Frequency	Percent
Lifetime khat use	0	263	67.10
	1-39 times	76	19.40
	>39 times	53	13.50
Khat use within 30 days of the study period	0	298	76.00
	1-39 times	82	20.90
	>39 times	12	3.10

The prevalence of lifetime khat use (32.90%) in this study is higher compared to what Gebrehanna et al (2014:3) report which shows prevalence of 23% in the Ethiopian adult population. The prevalence of khat chewing in this study is also higher than report in the 2012 Ethiopian Demographic and Health Survey (EDHS) which shows prevalence of 28% among men and 11% among women (CSA [Ethiopia] & ICF International Calverton [Maryland, USA] 2012:52). The lifetime prevalence of khat chewing in this study is also higher compared to the prevalence of khat chewing among students at other universities in Ethiopia including Ambo University (17.60%), (Nigussie et al 2013:125), Bahir Dar University (24%) (Gebrehanna et al 2014:6), and Axum University (28.70%) (Gebreslassie et al (2013:5). The prevalence of khat chewing within 30 days (24%) of the study period slightly less than the prevalence during the study period (27.90%) among students at Axum University (Gebreslassie et al (2013:5) but higher compared to the recent prevalence among students at Bahir Dar University (Gebrehanna et al 2014:6). The overall result of this study indicates that the prevalence of khat chewing among students at target University is higher compared to students at other universities in Ethiopia. This may be attributed to the higher prevalence of khat chewing among the communities in eastern Ethiopia including Harari and Somali regional state where the university is located (CSA [Ethiopia] & ICF International Calverton [Maryland, USA] 2012:54). The proximity of the prevalence of khat use 1 to 39 times in life time

(19.40%) and within 30 days of the study period (20.90%) may indicate that students who started chewing khat before joining the university continue to chew or students start to chew khat after they join the university.

4.3.1.5 The prevalence of shisha smoking

Table 4.10 shows that majority, (n=342; 87.20%) of respondents have never smoked shisha while (n=43; 11.00%) and (n=7; 1.80%) smoked shisha 1 to 39 times and more than 39 times in their lifetime respectively. Table 4.10 also reveals that (n=25; 6.40%) and only (n=5; 1.30%) of respondents reported that they smoked shisha 1 to 39 times and more than 39 times within 30 days of the study period respectively.

TABLE 4.10: **The prevalence of shisha smoking (n = 392)**

Number of occasions		Frequency	Percent
Lifetime shisha use	0	342	87.20
	1-39 times	43	11.00
	>39 times	7	1.80
shisha use within 30 days of the study period	0	362	92.30
	1-39 times	25	6.40
	>39 times	5	1.30

The life time prevalence (12.80%) of shisha abuse in this study is less than the prevalence of shisha abuse (30%) among university students in USA (Gathuru et al 2015:272). The result of this study is also shows less prevalence of shisha abuse among students at the target university compared to the prevalence (48.60%) among Iranian medical school students (Nasirian, Ziaaddini & Asadollahi 2013:104) and the prevalence (29.90%) among students in Harari (Reda, Moges, Yazew & Biadgilign 2012:3). From the overall result of this study, one may induce that shisha is a newly emerging substance of abuse to Ethiopian students while it is common in Harari where the culture of the community is believed to be influenced by Arabian culture.

4.3.1.6 The prevalence of marijuana abuse

Table 4.11 shows that majority, (n=375; 95.70%) of respondents have never abused marijuana while (n=15; 3.80%) and only (n=2; 0.50%) abused marijuana 1 to 39 times and more than 39 times in their lifetime respectively. Table 4.11 also reveals that only (n=9; 2.30%) and (n=1; 0.30%) of respondents reported that they used

marijuana 1 to 39 times and more than 39 times within 30 days of the study period respectively.

TABLE 4.11: The prevalence of marijuana abuse (n = 392)

Number of occasions		Frequency	Percent
Lifetime marijuana use	0	375	95.70
	1-39 times	15	3.80
	>39 times	2	0.50
Marijuana use within 30 days of the study period	0	382	97.40
	1-39 times	9	2.30
	>39 times	1	0.30

The prevalence of lifetime marijuna abuse (4.20%) in this study is considerably less compared to the prevalence of lifetime marijuana abuse (48.90%) among university students in USA (Falls et al 2011:228). The prevalence of marijuana abuse within 30 days of the study period (2.60%) in this study is however higher than the prevalence of marijuana abuse within 12 months (0.90%) among students at Hawassa University (Kassa et al 2014:3). Faubion (2013:385) indicates that marijuana was the most produced, trafficked and abused substance across the globe in 2010. Similar to shisha, one can induce from these results that marijuana abuse is an emerging problem for Ethiopian university students.

4.3.1.7 The prevalence of cocaine abuse

Table 4.12 shows that majority, (n=385; 98.20%) of respondents have never abused cocaine while only (n=7; 1.80%) abused cocaine 1 to 39 times in their lifetime. The table also reveals that only (n=6; 1.60%) of respondents reported that they abused cocaine 1 to 39 times within 30 days of the study period.

TABLE 4.12: The prevalence of cocaine abuse (n = 392)

Number of occasions		Frequency	Percent
Lifetime cocaine use	0	385	98.20
	1-39 times	7	1.80
	>39 times	0	0.00
Cocaine use within 30 days of the study period	0	386	98.50
	1-39 times	6	1.60
	>39 times	0	0.00

The prevalence of cocaine abuse (1.80%) in this study is less than the national prevalence of non-prescription stimulant (including cocaine) abuse (7.90%) among

U.S. students (Reid et al 2015:23). According to Reid et al (2015:26), 16% of students at South Eastern University reportedly use non-prescription stimulants. From these statements, it is possible to make a conjecture that cocaine abuse is not prevalent among students at the target University.

4.3.1.8 The prevalence of heroin abuse

Table 4.13 shows that majority, (n=385; 98.20%) of respondents have never abused heroin while (n=6; 1.50%) and only (n=1; 0.30%) abused heroin 1 to 39 times and more than 39 times in their lifetime respectively. Table 4.13 also reveals that only (n=5; 1.30%) and (n=1; 0.30%) of respondents reported that they abused heroin 1 to 39 times and more than 39 times within 30 days of the study period respectively.

TABLE 4.13: The prevalence of heroin abuse (n = 392)

Number of occasions		Frequency	Percent
Lifetime heroin use	0	385	98.20
	1-39 times	6	1.50
	>39 times	1	0.30
heroin use within 30 days of the study period	0	386	98.50
	1-39 times	5	1.30
	>39 times	1	0.30

The prevalence of heroin abuse (1.80%) is less than the prevalence reported by a study on young students in Quebec, Canada, which found that about 8% of respondents abused hard drugs (including heroin) 1 to 4 times a month and about 2% of them abused at least twice a week (Lemelin et al 2014:193). A study on Iranian university students also revealed that the prevalence of heroin abuse was 2.23% (Zivari-Rahman et al 2012:39). The above statements show that heroin abuse is less prevalent but an emerging problem for students at the target University.

4.3.1.9 Age at abusing substance for the first time

Table 4.14 shows that most of substance abuser respondents started abusing the substances at the age of 17 or more years old-that is at the time of joining the university. Most of khat chewer respondents, (n=59; 15.10%) started abusing khat at the age of 17-19 years old followed by (n=34; 8.70%) at the age of 20 or more years old. Most of cigarette smokers, (n=31; 7.90%) and (n=27; 6.90%) also started smoking cigarette at the age of 17-19 years old and at the age of 20 or more years

old. Fifteen; 3.80%) and (n=19; 4.80%) of respondents of shisha abusers and (n=46; 11.70%) and (n=38; 9.70%) of alcohol abusers reported that they started abusing the substances at the age of 17-19 years old and at age of 20 or more years old respectively.

TABLE 4.14: Age at abusing substance for the first time (n = 392)

Age at abusing substance for the first time		Frequency	Percent
Khat	<11 years old	3	0.80
	11-13 years old	6	1.50
	14-16 years old	25	6.40
	17-19 years old	59	15.10
	≥20 years old	34	8.70
Cigarette	<11 years old	7	1.80
	11-13 years old	2	0.50
	14-16 years old	5	1.30
	17-19 years old	31	7.90
	≥20 years old	27	6.90
Shisha	<11 years old	5	1.30
	11-13 years old	1	0.30
	14-16 years old	2	0.50
	17-19 years old	15	3.80
	≥20 years old	19	4.80
Alcohol	<11 years old	25	6.40
	11-13 years old	12	3.10
	14-16 years old	23	5.90
	17-19 years old	46	11.70
	≥20 years old	38	9.70
Marijuana	<11 years old	6	1.50
	11-13 years old	0	0.00
	14-16 years old	1	0.30
	17-19 years old	0	0.00
	≥20 years old	2	0.50
Cocaine	<11 years old	0	0.00
	11-13 years old	0	0.00
	14-16 years old	1	1.50
	17-19 years old	6	1.50
	≥20 years old	2	0.50
Heroin	<11 years old	0	0.00
	11-13 years old	0	0.00
	14-16 years old	1	0.30
	17-19 years old	1	0.30
	≥20 years old	6	1.50

Surprisingly, of the scanty number of marijuana abusers, 6 (1.50%) respondents reported that they started it at age of less than 11 years old. The small number of cocaine and heroin abusers, 6 (1.50%), reported that they started abusing the substances at the age of 17-19 years old and at 20 or more years old respectively.

Table 4.14 shows that majority of substance abuser respondents started to abuse the substances at the age of 17-19 years or at 20 years and above. In South Africa, about 13% of the population is affected by substance abuse disorder and onset of substance abuse is at as young as 21 years of age (Sorsdahl et al 2012:1). According to Kassa et al (2014:3), respondents at Hawassa University started alcohol, khat, and cigarette at the mean age of 15.4, 16.6, and 17 years respectively. For students at Axum University, the mean age of onset of khat, alcohol, and tobacco abuse was 20.1 years (Gebreslassie et al 2013:6). These age categories are the age at which students enter the university. Roditis et al (2015:57) account that undergraduate university students are emerging adults who are in a developmental period marked by exploitation which can lead to experimentation with substance abuse. National Institute on Drug Abuse (2014:3, 13) and Roditis et al (2015:57) add that university students are at the age stratum which is marked by experimentation with substance use. From the findings of this study, one can conclude that the students enter into substance abuse at the age when they join the university.

4.3.1.10 Cited reasons for abusing substances

Table 4.15 shows that most of substance abuser respondents abuse different substances for different reasons. While most, (n=77; 19.60%) of khat chewer respondents reported that they chewed khat to help them study hard, most, (n=24; 6.10%) of cigarette smokers and (n=88; 22.40%) of alcohol drinkers reported that they abused the substances to get happiness. Peer pressure for (n=17; 4.30%) and getting happiness for (n=15; 3.80%) of respondents appeared to be the driving force for abusing shisha.

TABLE 4.15: Reasons for abusing substances (n = 392)

Reasons for abusing substances		Frequency	Percent
Khat	Helps me study hard	77	19.60
	Because my friends use it	31	7.90
	It makes me happy	29	7.40
	To get relieve from anxiety	9	2.30
	Curiosity	10	2.60
Cigarette	Helps me study hard	5	1.30
	Because my friends use	16	4.10
	It makes me happy	24	6.10
	To get relieve from anxiety	13	3.30
	Curiosity	5	1.30
Shisha	Helps me study hard	5	1.30
	Because my friends use	17	4.30
	It makes me happy	15	3.80
	To get relieve from anxiety	5	1.30
	Curiosity	1	0.30
Alcohol	Helps me study hard	5	1.30
	Because my friends use	30	7.70
	It makes me happy	88	22.40
	To get relieve from anxiety	16	4.10
	Curiosity	7	1.80

Literatures indicate various reasons for substance abuse among university students. For example, Maier et al (2013:5, 7) indicate that students who experience mental tension in relation to academic pressure are more vulnerable to substance abuse. Trunzo et al (2014:396) maintain that many university students use energy drink to enhance their academic performance. Gebreslassie et al (2013:8) and Massachusetts Department of Public Health Bureau of Substance Abuse Services (2009:3) argue that substance abuse among friends of students is strong predictor of students' substance abuse. The perception that khat helps to study hard has increased khat chewing among undergraduate students at Bahir Dar University by more than 6 times (Gebrehanna et al 2014:6). Many participants in a study by Berhanu et al (2012:1201) reported that they started chewing khat when they were students in order to study hard. This study also shows that majority of students abused khat to enhance their academic performance.

4.3.1.11 Access to addictive substances

Table 4.16 shows that access to khat, cigarette, and alcohol is very easy for the majority (n=269; 68.60%), (n=280; 71.40%), and (n=216; 55.10%) of respondents respectively. On the other hand, (n=150; 38.30%), (n=204; 52.00%), and (n=205;

52.30%) of respondents reported that they do not know the difficulty of getting marijuana, cocaine, and heroin respectively. A substantial number of respondents (n=94; 24.00%), (n=102; 26.00%), and (n=92; 23.50%)) reported that it is very difficult to get marijuana, cocaine, and heroin respectively.

TABLE 4.16: Access to addictive substances (n = 392)

Ease of access to substance of abuse		Frequency	Percent
Khat	Impossible	6	1.50
	Very difficult	17	4.30
	Fairly difficult	12	3.10
	Fairly easy	55	14.00
	Very easy	269	68.60
	Do not know	31	7.90
Cigarette	Impossible	5	1.30
	Very difficult	19	4.80
	Fairly difficult	5	1.30
	Fairly easy	43	11.00
	Very easy	280	71.40
	Do not know	38	9.70
Shisha	Impossible	8	2.00
	Very difficult	27	6.90
	Fairly difficult	31	7.90
	Fairly easy	68	17.30
	Very easy	185	47.20
	Do not know	70	17.90
Alcohol	Impossible	18	4.60
	Very difficult	29	7.40
	Fairly difficult	19	4.80
	Fairly easy	52	13.30
	Very easy	216	55.10
	Do not know	55	14.00
Marijuana	Impossible	40	10.20
	Very difficult	94	24.00
	Fairly difficult	37	9.40
	Fairly easy	25	6.40
	Very easy	42	10.70
	Do not know	150	38.30
Cocaine	Impossible	57	14.50
	Very difficult	102	26.00
	Fairly difficult	13	3.30
	Fairly easy	3	0.80
	Very easy	9	2.30
	Do not know	204	52.00
Heroin	Impossible	70	17.90
	Very difficult	92	23.50
	Fairly difficult	11	2.80
	Fairly easy	3	0.80
	Very easy	7	1.80
	Do not know	205	52.30

Researchers assert that access to substances of abuse is important factor for substance use among university students. According to Mackert et al (2014:274) and

NIDA (2014:3), the widespread availability of substances of abuse around university campuses promotes substance use among university students. In this study, khat, cigarette and alcohol are easily accessible to students and they are the most prevalently abused substances by the students. This indicates that ease of access to addictive substances promotes substance abuse.

4.3.1.12 Substance abuse by respondents' close people

The findings of this study indicate that alcohol, khat, and cigarette are the most prevalent addictive substances for respondents' close people. Table 4.17 shows that (n=102; 26.00%), (n=77; 19.60%), and (n=19; 4.80%) of respondents reported that their fathers abuse alcohol, khat, and cigarette respectively. Seventy nine; 20.20%, (n=14; 3.60%), and (n=2; 0.50%) of respondents also reported that their mothers abuse alcohol, khat, and cigarette respectively. It is striking that respondents' mothers and sisters smoke shisha (n=4; 1.00%) and (n=3; 0.80%) more than cigarette (n=2; 0.50%) respectively. Moreover, (n=92; 23.50%), (n=65; 16.60%), and (n=19; 4.80%) of respondents reported that their brothers abuse alcohol, khat, and cigarette respectively. Respondents reported that substance abuse is substantially prevalent among their friends with (n=107; 27.30%), (n=191; 48.70%), (n=137; 34.90%), (n=86; 21.90%), and (n=23; 5.90%) of respondents reported that their friends use alcohol, khat, cigarette, shisha, and marijuana respectively. The abuse of alcohol, khat, cigarette, and shisha by respondents' other relatives was reported by (n=157; 40.10%), (n=87; 22.20%), (n=52; 13.30%), and (n=39; 9.90%) of respondents respectively. The abuse of cocaine and heroin by respondents' close people was found to be rare with only (n=7; 1.80%) and (n=4; 1.00%) of respondents reported that their friends abused cocaine and heroin respectively and only (n=9; 2.30%) and (n=5; 1.30%) of respondents reported that their other relatives abused cocaine and heroin respectively.

TABLE 4.17: Substance abuse by respondents' close people (n = 392)

Respondents' close people and the substance they use		Frequency	Percent
Father	Khat	77	19.60
	Cigarette	19	4.80
	Shisha	4	1.00
	Alcohol	102	26.00
	Marijuana	2	0.50
	Cocaine	0	0.00
	Heroin	0	0.00
Mother	Khat	14	3.60
	Cigarette	2	0.50
	Shisha	4	1.00
	Alcohol	79	20.20
	Marijuana	0	0.00
	Cocaine	0	0.00
	Heroin	0	0.00
Brother	Khat	65	16.60
	Cigarette	19	4.80
	Shisha	6	1.50
	Alcohol	92	23.50
	Marijuana	1	0.30
	Cocaine	0	0.00
	Heroin	0	0.00
Sister	Khat	15	3.80
	Cigarette	2	0.50
	Shisha	3	0.80
	Alcohol	66	16.80
	Marijuana	0	0.00
	Cocaine	0	0.00
	Heroin	0	0.00
Friend	Khat	191	48.70
	Cigarette	137	34.90
	Shisha	86	21.90
	Alcohol	107	27.30
	Marijuana	23	5.90
	Cocaine	7	1.80
	Heroin	4	1.00
Other relatives	Khat	87	22.20
	Cigarette	52	13.30
	Shisha	39	9.90
	Alcohol	157	40.10
	Marijuana	14	3.60
	Cocaine	9	2.30
	Heroin	5	1.30

Substance abuse by students' close people is an important factor for students' substance abuse. For instance, a study conducted by Rozenbroek and Rothstein (2011:361) indicates that about 20% of non-medical opiate abuser university students in USA mentioned their family as a source of their drugs. Seventy nine percent of glue using street children in Kenya reported that they had a family member who uses alcohol, cigarette, or other substances (Embleton et al 2013:5).

Moreover, 18% of street children who ever used drugs were introduced by family members (Embleton et al 2013:5). The results of this study show that substance abuse is more common among friends and fathers of respondents compared to other relatives. This indicates that intervention on substance abuse among relatives of students should first consider their friends and fathers.

4.3.1.13 Respondents' perception towards the effect of substance abuse

Table 4.18 shows that (n=83; 21.20%) and (n=116; 29.60%) of respondents reported that the chance of feeling happy as a result of substance abuse is very likely and likely respectively while (n=61; 15.60%), (n=38; 9.70%), and (n=62; 15.80%) of respondents reported unsure, unlikely, and very unlikely respectively. This table also shows that (n=81; 20.70%) and (n=122; 31.10%) of respondents reported that the chance of feeling relaxed as a result of substance abuse is very likely and likely respectively while (n=64; 16.30%), (n=37; 9.40%), and (n=55; 14.00%) of respondents reported unsure, unlikely, and very unlikely respectively. The findings also indicate that (n=145; 37.00%) and (n=58; 14.80%) of respondents reported that the chance of getting their health harmed as a result of substance abuse is very likely and likely respectively while (n=56; 14.30%), (n=50; 12.80%), and (n=48; 12.20%) of respondents reported unsure, unlikely, and very unlikely respectively. One hundred and forty eight; 37.80% and (n=55; 14.00%) of respondents reported that the chance of getting addicted as a result of substance abuse is very likely and likely respectively while (n=55; 14.00%), (n=57; 14.50%), and (n=42; 10.70%) of respondents reported unsure, unlikely, and very unlikely respectively. Moreover, (n=112; 28.20%) and (n=68; 17.30%) of respondents reported that the chance of doing something that they would reject as a result of substance abuse is very likely and likely respectively while (n=76; 19.40%), (n=45; 11.50%), and (n=54; 13.80%) of respondents reported unsure, unlikely, and very unlikely respectively.

TABLE 4.18: Respondents' perception towards the effect of substance abuse (n = 392)

Respondents' perception towards the effect of substance abuse		Frequency	Percent
Feel happy	Very likely	83	21.20
	Likely	116	29.60
	Unsure	61	15.60
	Unlikely	38	9.70
	Very unlikely	62	15.80
Feel relaxed	Very likely	81	20.70
	Likely	122	31.10
	Unsure	64	16.30
	Unlikely	37	9.40
	Very unlikely	55	14.00
Forget problem	Very likely	65	16.60
	Likely	102	26.00
	Unsure	75	19.10
	Unlikely	56	14.30
	Very unlikely	61	15.60
Harm my health	Very likely	145	37.00
	Likely	58	14.80
	Unsure	56	14.30
	Unlikely	50	12.80
	Very unlikely	48	12.20
Get addicted	Very likely	148	37.80
	Likely	55	14.00
	Unsure	57	14.50
	Unlikely	42	10.70
	Very unlikely	56	14.30
Do something I would reject	Very likely	112	28.60
	Likely	68	17.30
	Unsure	76	19.40
	Unlikely	45	11.50
	Very unlikely	54	13.80

Students' perception regarding the effect of substances of abuse plays an important role in students' substance abuse. According to Konecky and Lawyer (2015:207), one important behavioural mechanism that determines substance abuse among young people is the behaviour of delay discounting. Delay discounting is an impulse related behaviour characterised by preference for smaller outcomes that are available sooner over large outcomes that are available after a delay (Konecky & Lawyer 2015:207). Sattler et al (2013:7) also come up with economic theory, rational choice model, which states that ''an increase in the utility boosts the probability of using substances.'' The findings of this study show that almost half (50.8%) of respondents perceive that they can experience happiness from substance abuse. To

the contrary, about halve (51.8%) of respondents perceive that substance abuse can harm their health. This requires an intervention aimed at improving the risk perception of students regarding substance abuse.

4.3.2 Findings regarding the association between components of Social Ecological Model and substance abuse

In this section, the association between components of the Social Ecological Model including the intrapersonal, interpersonal, institution, and community, factors and substance abuse will be explored using chi-square test for independence. The chi-square test for independence is used to assess the association between variables when the dependent variable is categorical variable and/or the assumption of normal distribution of the population of interest is not met (Polit & Beck 2012:411). The chi-square for independence statistical analysis with statistical significance of 0.05 was conducted using cross tabulations which containing the Observed Frequency (OF), Expected Frequency (EF), and the percent of respondents in each category of the variable of interest. The OF is the number of respondents in each category of the variable actually observed in the data while EF denotes the number of respondents that one would expect to observe if there is no association between the variables (Polit & Beck 2012:420).

As the prevalence of the abuse of substances such as shisha, marijuana, cocaine, and heroin is negligible in this study, the analysis is made taking only the lifetime prevalence of abusing cigarette, alcohol, and khat. The associations between the factors at societal level and most of the factors at institutional level such as the rules and regulations of the institution, and substance abuse, were not conducted using the chi-square statistics as the respondents do not differ in this matter. This is because all of the respondents live in the same society which is governed with the same policy in this regard and in the same institution which has the same policy and guidelines for all students. As a result, these factors were explored descriptively using the open-ended questions of the quantitative and the qualitative part of the study.

4.3.2.1 The association between intrapersonal factors and substance abuse

The association between intrapersonal factors such as age, gender, and personal perception regarding substance abuse and substance abuse among students were explored using statistical procedures. The following sections present the findings in this regard.

4.3.2.1.1 The association between gender and life time cigarette smoking

Table 4.19 reveals that a higher proportion (11.20% and 11.90%) of male respondents reported that they abused cigarette 1 to 39 times and more than 39 times in their life time with OF of 29 and 31, and EF of 23.90 and 21.20 respectively compared to only 5.30% and 0.80% of female respondents who reported that they smoked cigarette 1 to 39 times and more than 39 times in their life time with OF of 7 and 1, and EF of 12.10 and 10.80 respectively.

TABLE 4.19: Gender and life time cigarette smoking cross tabulation (n=392)

Gender		**Life time cigarette smoking**			**Total**
		0	**1-39 times**	**>39 times**	
Male	OF	200	29	31	260
	EF	214.90	23.90	21.20	260.0
	% of male respondents in each category	76.90%	11.20%	11.90%	100.00%
Female	OF	124	7	1	132
	EF	109.10	12.10	10.80	132.00
	% % of female respondents in each category	93.90%	5.30%	0.80%	100.00%

The chi-square test for independence 19.70, df 2, Cramer's V 0.224, and P<0.005 indicates that there is significant association between gender and life time cigarette smoking status.

4.3.2.1.2 The association between gender and life time alcohol drinking

Table 4.20 reveals that 24.60% and 19.20% of male respondents reported that they drank alcohol 1 to 39 times and more than 39 times in their life time with OF of 64 and 50, and EF of 65.70 and 42.40 respectively compared to 25.30% and 16.30% of female respondents who reported that they drank alcohol 1 to 39 times and more than 39 times in their life time with OF of 35 and 14, and EF of 33.30 and 21.60 respectively.

TABLE 4.20: Gender and life time alcohol drinking cross tabulation (n=392)

Gender		Life time alcohol drinking			Total
		0	1-39 times	>39 times	
Male	OF	146	64	50	260
	EF	151.90	65.70	42.40	260.00
	% of male respondents in each category	56.20%	24.60%	19.20%	100.00%
Female	OF	83	35	14	132
	EF	77.10	33.30	21.60	132.00
	% of female respondents in each category	58.4%	25.3%	16.3%	100.0%

The chi-square test for independence 4.79, df 2, Cramer's V 0.111, and P>0.09 indicates that there is no significant association between gender and life time alcohol drinking.

4.3.2.1.3 The association between gender and life time khat chewing

Table 4.21 reveals that a higher proportion (26.50% and 19.20%) of male respondents reported that they chewed khat 1 to 39 times and more than 39 times in their life time with OF of 69 and 50, and EF of 50.40 and 35.20 respectively compared to only 5.30% and 2.30% of female respondents who reported that they chewed khat 1 to 39 times and more than 39 times in their life time with OF of 7 and 3, and EF of 25.60 and 17.80 respectively.

TABLE 4.21: Gender and life time khat chewing cross tabulation (n=392)

Gender		Life time khat chewing			Total
		0	1-39 times	>39 times	
Male	OF	141	69	50	260
	EF	174.40	50.40	35.20	260.00
	% of male respondents in each category	54.20%	26.50%	19.20%	100.00%
Female	OF	122	7	3	122
	EF	88.60	25.60	17.80	132.00
	% % of female respondents in each category	92.40%	5.30%	2.30%	100.00%

The chi-square test for independence 58.02, df 2, Cramer's V 0.385, and P<0.005 indicates that there is a significant association between gender and life time khat chewing.

Except for alcohol use, the findings of this study show that there is statistically significant association between gender and substance abuse. The results of this study agree with the findings of a cluster analysis on American students conducted by Primack et al (2012:377) which shows that smoking cigarette was higher (61%) in clusters with the highest number of males than in clusters with the highest number of females (28%). In this analysis, compared to women, men had an odds ratio of 4.19 (95% CI 3.37-4.43) to be smokers (Primack et al 2012:381). The findings of this study regarding the association between gender and alcohol drinking is contrary to what is reported by Verhagen et al (2015:7) which indicates that the prevalence of drinking alcohol and cannabis abuse among Dutch men students was higher than their women counterparts. However, the lack of significant gender difference on alcohol drinking is in agreement with what Becker et al (2012:3) reported what indicates that women in England were using as much alcohol as men in 1700s. The findings of this study regarding khat chewing agree with what Gebrehanna et al (2014:6) report that shows male students at Bahir Dar University were 3 times more likely to chew khat than female students. Another study at Jimma University, Ethiopia revealed that prevalence of chewing khat in men is 30% compared to only 3% in women counterparts (Mains et al 2013:118). Male students at Ambo University also reported higher prevalence of chewing khat than female counterparts (Nigussie et al

2013:125). The gender disparity on substance abuse in this study calls for more intervention on male students without leaving female students.

4.3.2.1.4 The association between risk perception and life time cigarette smoking

Table 4.22 reveals that an equal proportion of 5.50% of respondents who replied 'very likely' to the question 'how likely is that substance abuse could harm health?' reported that they smoked cigarette 1 to 39 times and more than 39 times in their life time with OF of 7 and 8, and EF of 5.60 and 4.90 respectively. This is almost similar with the proportion (14.60% and 8.30%) of respondents who replied 'very unlikely' to the question 'how likely is that substance abuse could harm health?' who reported that they smoked cigarette 1 to 39 times and more than 39 times in their life time with OF of 7 and 4, and EF of 4.80 and 4.20 respectively. A slightly higher proportion (14.30% and 12.50%) of respondents who replied 'unsure' to the question 'how likely is that substance abuse could harm health?' reported that they smoked cigarette 1 to 39 times and more than 39 times in their life time with OF of 8 and 7, and EF of 5.00 and 4.30 respectively.

TABLE 4.22: The perception that substance abuse could harm health and life time cigarette smoking cross tabulation (n=357)

Substance abuse could harm health		Life time cigarette smoking			Total
		0	1-39 times	>39 times	
Very likely	OF	129	8	8	145
	EF	117.8	14.6	12.6	145.0
	% of respondents in each category	89.0%	5.5%	5.5%	100.0%
Likely	OF	43	7	8	58
	EF	47.1	5.8	5.0	58.0
	% of respondents in each category	74.1%	12.1%	13.8%	100.0%
Unsure	OF	41	8	7	56
	EF	45.50	5.60	4.90	56.00
	% of respondents in each category	73.20%	14.30%	12.50%	100.00%
Unlikely	OF	40	6	4	50
	EF	40.60	5.00	4.30	50.00
	% of respondents in each category	80.00%	12.00%	8.00%	100.00%
Very unlikely	OF	37	7	4	48
	EF	39.00	4.80	4.20	48.00
	% of respondents in each category	77.10%	14.60%	8.30%	100.00%

The chi-square test for independence 11.72, df 8, Cramer's V 0.128, and P>0.10 indicates that there is no significant association between risk perception and life time cigarette smoking.

4.3.2.1.5 The association between risk perception and life time alcohol drinking

Table 4.23 reveals that less proportion (17.20% and 16.60%) of respondents who replied 'very likely' to the question 'how likely is that substance abuse could harm health?' reported that they drank alcohol 1 to 39 times and more than 39 times in their life time with OF of 25 and 24, and EF of 38.20 and 25.20 respectively compared to 35.40% and 12.50% of respondents who replied 'very unlikely' to the question 'how likely is that substance abuse could harm health?' who reported that they drank alcohol 1 to 39 times and more than 39 times in their life time with OF of 17 and 6, and EF of 12.60 and 8.30 respectively. The proportion (33.90% and 14.30%) of respondents who replied 'unsure' to the question 'how likely is that

substance abuse could harm health?' and reported that they drank alcohol 1 to 39 times and more than 39 times in their life time with OF of 25 and 24, and EF of 38.20 and 25.20 respectively is almost similar with those who replied 'very unlikely' to the question 'how likely is that substance abuse could harm health?'.

TABLE 4.23: The perception that substance abuse could harm health and life time alcohol drinking cross tabulation (n=357)

Substance abuse could harm health		Life time alcoholic beverage drinking			Total
		0	1-39 times	>39 times	
Very likely	OF	96	25	24	145
	EF	81.60	38.20	25.20	145.00
	% of respondents in each category	66.20%	17.20%	16.60%	100.00%
Likely	OF	28	14	16	58
	EF	32.70	15.30	10.10	58.00
	% of respondents in each category	48.30%	24.10%	27.60%	100.00%
Unsure	OF	29	19	8	56
	EF	31.50	14.70	9.70	56.00
	% of respondents in each category	51.80%	33.90%	14.30%	100.00%
Unlikely	OF	23	19	8	50
	EF	28.20	13.20	8.70	50.00
	% of respondents in each category	46.00%	38.00%	16.00%	100.00%
Very unlikely	OF	25	17	6	48
	EF	27.00	12.60	8.30	48.00
	% of respondents in each category	52.10%	35.40%	12.50%	100.00%

The chi-square test for independence 19.02, df 8, Cramer's V 0.163, and P<0.025 indicates that there is significant association between risk perception and life time alcohol drinking.

4.3.2.1.6 The association between risk perception and life time khat chewing

Table 4.24 reveals that a slightly less proportion (15.20% and 8.30%) of respondents who replied ‘very likely’ to the question ‘how likely is it that substance abuse could harm health?’ reported that they chewed khat 1 to 39 times and more than 39 times in their life time with OF of 22 and 12, and EF of 29.60 and 20.30 respectively compared to 22.90% and 18.80% of respondents who replied ‘very unlikely’ to the question ‘how likely is it that substance abuse could harm health?’ who reported that they chewed khat 1 to 39 times and more than 39 times in their life time with OF of 11 and 19, and EF of 9.80 and 6.70 respectively. The proportion (23.20% and 19.60%) of respondents who replied ‘unsure’ to the question ‘how likely is it that substance abuse could harm health?’ and reported that they drank alcohol 1 to 39 times and more than 39 times in their life time with OF of 13 and 11, and EF of 11.50 and 7.70 respectively is almost similar with those who replied ‘very unlikely’ to the question ‘how likely is it that substance abuse could harm health?’.

TABLE 4.24: The perception that substance abuse could harm health and life time khat chewing cross tabulation (n=357)

Substance abuse could harm health		Life time khat chewing			Total
		0	1-39 times	>39 times	
Very likely	OF	111	22	12	145
	EF	95.00	29.60	20.30	145.00
	% of respondents in each category	76.60%	15.20%	8.30%	100.00%
Likely	OF	34	14	10	58
	EF	38.00	11.90	8.10	58.00
	% of respondents in each category	58.60%	24.10%	17.20%	100.00%
Unsure	OF	32	13	11	56
	EF	36.70	11.50	7.80	56.00
	% of respondents in each category	57.10%	23.20%	19.60%	100.00%
Unlikely	OF	29	13	8	50
	EF	32.80	10.20	7.00	50.00
	% of respondents in each category	58.00%	26.00%	16.00%	100.00%
Very unlikely	OF	28	11	9	48
	EF	31.50	9.80	6.70	48.00
	% of respondents in each category	58.30%	22.90%	18.80%	100.00%

The chi-square test for independence 14.00, df 8, Cramer's V 0.140, and P>0.05 indicates that there is no significant association between risk perception and life time khat chewing.

Except for alcohol drinking, the findings of this study show that there is no statistically significant association between substance abuse and risk perception. The lack of association in this study is contrary to what several literatures indicate. For example, Beck et al (2014:888) argue that a lower perceived risk could lead to higher frequency of substance use among students. Salameh et al (2014:286) also claim that individuals with more risk perception tendency are less likely to involve with risky behaviours including substance abuse. The lack of association between

risk perception and substance abuse in this study is contrary to most of the contemporary literatures and thus requires further investigations.

4.3.2.2 The association between interpersonal factors and substance abuse

Factors related to the interpersonal relations of the students that can positively or negatively affect substance abuse are presented in the following sub-topics. The researcher sought the relationship between the interpersonal factors and substance abuse among the students using the most prevalent substances at the target University. Father's substance abuse is taken as factor of substance abuse among family members.

4.3.2.2.1 The association between cigarette smoking among father and life time cigarette smoking

Table 4.25 reveals that a higher proportion (26.30% and 15.80%) of respondents whose fathers smoke cigarette reported that they smoked cigarette 1 to 39 times and more than 39 times in their life time with OF of 5 and 3, and EF of 1.70 and 1.60 respectively compared to 8.30% and 7.80% of respondents whose fathers do not smoke cigarette who reported that they smoked cigarette 1 to 39 times and more than 39 times respectively in their life time with OF of 31 and 29, and EF of 34.30 and 30.40 respectively.

TABLE 4.25: Father smokes cigarette and life time cigarette smoking cross tabulation (n=392)

Father smokes cigarette		Life time cigarette smoking			Total
		0	1-39 times	>39 times	
Yes	OF	11	5	3	19
	EF	15.70	1.70	1.60	19.00
	% of respondents in each category	57.90%	26.30%	15.80%	100.00%
No	OF	313	31	29	373
	EF	308.30	34.30	30.40	373.00
	% of respondents in each category	83.90%	8.30%	7.80%	100.00%

The chi-square test for independence 9.29, df 2, Cramer's V 0.154, and P<0.01 indicates that there is significant association between cigarette smoking among fathers and life time cigarette smoking.

4.3.2.2.2 The association between alcohol drinking among fathers and life time alcohol drinking

Table 4.26 reveals that a higher proportion (43.10% and 28.40%) of respondents whose fathers drink alcohol reported that they drank alcohol 1 to 39 times and more than 39 times in their life time with OF of 44 and 29, and EF of 25.80 and 16.70 respectively compared to 19.00% and 12.10% of respondents whose fathers do not drink alcohol who reported that they used alcohol 1 to 39 times and more than 39 times respectively in their life time with OF of 55 and 35, and EF of 73.20 and 47.30 respectively.

TABLE 4.26: Father drinks alcohol and life time alcohol drinking cross tabulation (n=392)

Father drinks alcohol		Life time alcohol drinking			Total
		0	1-39 times	>39 times	
Yes	OF	29	44	29	102
	EF	59.60	25.80	16.70	102.00
	% of respondents in each category	28.40%	43.10%	28.40%	100.00%
No	OF	200	55	35	290
	EF	169.40	73.20	47.30	290.00
	% of respondents in each category	69.00%	19.00%	12.10%	100.00%

The chi-square test for independence 51.05, df 2, Cramer's V 0.361, and P<0.005 indicates that there is significant association between alcohol drinking among fathers and life time alcohol drinking.

4.3.2.2.3 The association between khat chewing among fathers and life time khat chewing

Table 4.27 reveals that a higher proportion (33.80% and 31.20%) of respondents whose fathers chew khat reported that they chewed khat 1 to 39 times and more than 39 times in their life time with OF of 26 and 24, and EF of 14.90 and 10.40 respectively compared to 15.90% and 9.20% of respondents whose fathers do not chew khat who reported that they used khat 1 to 39 times and more than 39 times in their life time with OF of 50 and 29, and EF of 61.10 and 42.60 respectively.

TABLE 4.27: Father chews khat and life time khat chewing cross tabulation (n=392)

Father chews khat		Life time khat chewing			Total
		0	1-39 times	>39 times	
Yes	OF	27	26	24	77
	EF	51.70	14.90	10.40	77.00
	% of respondents in each category	35.10%	33.80%	31.20%	100.00%
No	OF	236	50	29	315
	EF	211.30	61.10	42.60	315.00
	% of respondents in each category	74.90%	15.90%	9.20%	100.00%

The chi-square test for independence 46.94, df 2, Cramer's V 0.346, and P<0.005 indicates that there is significant association between khat chewing among fathers and life time khat chewing.

The findings of this study show that there is significant association between substance use among family members and substance use by students. This is in agreement with what is reported in several literatures. For example, Massachusetts Department of Public Health Bureau of Substance Abuse Services (2009:3) states that family behaviour affects the risk of substance abuse among young students. According to Embleton et al (2013:5), 79% of glue using street children in Kenya reported that they had a family member who uses alcohol, cigarette, or other substances. A study by Gebreslassie et al (2013:8) also concludes that students whose family members involve with substance use are at higher risk of being

involved with substance abuse. Another study on students at Worota district, Northwest Ethiopia, indicates that students whose parents or siblings use substance were at higher odds of substance use (Birhanu et al 2014:4). The current study indicates that students become more prone to substance abuse when it is common among family members and this calls for intervention on their family.

4.3.2.2.4 The association between cigarette smoking among peer groups and life time cigarette smoking

Table 4.28 reveals that a higher proportion (14.60% and 11.70%) of respondents whose friends smoke cigarette reported that they smoked cigarette 1 to 39 times and more than 39 times in their life time with OF of 20 and 16, and EF of 12.60 and 11.20 respectively compared to the equal proportion of 6.30% of respondents whose friends do not smoke cigarette who reported that they smoked cigarette 1 to 39 times and more than 39 times in their life time with equal number of OF of 16, and EF of 23.40 and 20.80 respectively.

TABLE 4.28: Friend smokes cigarette and life time cigarette smoking cross tabulation (n=392)

Friend smokes cigarette		Life time cigarette smoking			Total
		0	1-39 times	>39 times	
Yes	OF	101	20	16	137
	EF	113.20	12.60	11.20	137.00
	% of respondents in each category	73.70%	14.60%	11.70%	100.00%
No	OF	223	16	16	255
	EF	210.80	23.40	20.80	255.00
	% of respondents in each category	87.50%	6.30%	6.30%	100.00%

The chi-square test for independence 11.95, df 2, Cramer's V 0.175, and P<0.005 indicates that there is a significant association between cigarette smoking among peer groups and life time cigarette smoking.

4.3.2.2.5 The association between alcohol drinking among peer groups and life time alcohol drinking

Table 4.29 reveals that a higher proportion (36.90% and 29.30%) of respondents whose friends drink alcohol reported that they drank alcohol 1 to 39 times and more than 39 times in their life time with OF of 58 and 46, and EF of 39.70 and 25.60 respectively compared to 17.10% and 7.70% of respondents whose friends do not drink alcohol who reported that they used alcohol 1 to 39 times and more than 39 times in their life time with OF of 40 and 18, and EF of 59.10 and 38.20 respectively.

TABLE 4.29: Friend drinks alcohol and life time alcohol drinking cross tabulation (n=392)

Friend drinks alcohol		Life time alcohol drinking			Total
		0	1-39 times	>39 times	
Yes	OF	53	58	46	157
	EF	91.70	39.70	25.60	157.00
	% of respondents in each category	33.80%	36.90%	29.30%	100.00%
No	OF	176	40	18	234
	EF	136.70	59.10	38.20	234.00
	% of respondents in each category	75.20%	17.10%	7.70%	100.00%

The chi-square test for independence 72.13, df 4, Cramer's V 0.303, and P<0.005 indicates that there is a significant association between alcohol use among peer groups and life time alcohol drinking.

4.3.2.2.6 The association between khat chewing among peer groups and life time khat chewing

Table 4.30 reveals that a higher proportion (28.30% and 21.50%) of respondents whose friends chew khat reported that they chewed khat 1 to 39 times and more than 39 times in their life time with OF of 54 and 41, and EF of 37.00 and 25.80 respectively compared to 10.90% and 6.00% of respondents whose friends do not chew khat who reported that they chewed khat 1 to 39 times and more than 39 times in their life time with OF of 22 and 12, and EF of 39.00 and 27.20 respectively.

Table 4.30 Friend chews khat and life time khat chewing cross tabulation (n=392)

Friend chews khat		Life time khat chewing			Total
		0	1-39 times	>39 times	
Yes	OF	96	54	41	191
	EF	128.10	37.00	25.80	191.00
	% of respondents in each category	50.30%	28.30%	21.50%	100.00%
No	OF	167	22	12	201
	EF	134.90	39.00	27.20	201.00
	% of respondents in each category	83.10%	10.90%	6.00%	100.00%

The chi-square test for independence 48.29, df 2, Cramer's V 0.351, and P<0.005 indicates that there is a significant association between khat chewing among peer groups and life time khat chewing.

The findings of this study indicate that there is statistically significant association between substance abuse among peer groups and substance abuse by students. This is supported by several literatures. For example, Alsanosy et al (2013:6) and Lemelin et al (2014:191) argue that social network increases the risk of substance use when friends, relatives, or lovers abuse substance. Gebreslassie et al (2013:8) and Massachusetts Department of Public Health Bureau of Substance Abuse Services (2009:3) argue that substance abuse among friends of students is a strong predictor of students' substance abuse. The current study indicates that peer groups can significantly influence substance abuse among students. Thus, interventions on substance abuse need to consider mitigating substance abuse among peers.

4.3.2.4 The association between factors at community level and substance abuse

The tradition, culture, and customs of a community where individuals come from or live in affect their behaviour (Onya et al 2012:6). In this section, the association between substance abuse among students and community related factors including area of growth, region of growth, and religion was examined.

4.3.2.4.1 The association between area of growth and life time cigarette smoking

Table 4.31 reveals that a slightly higher proportion (12.70% and 10.90%) of respondents who grew up in urban areas reported that they smoked cigarette 1 to 39 times and more than 39 times in their life time with OF of 14 and 12, and EF of 9.20 and 9.50 respectively compared to 7.20% and 5.60% of respondents who grew up in rural areas who reported that they smoked cigarette 1 to 39 times and more than 39 times in their life time with OF of 9 and 7, and EF of 10.50 and 10.80 respectively.

TABLE 4.31: Area of growth and life time cigarette smoking cross tabulation (n=370)

Area of growth		Life time cigarette smoking			Total
		0	1-39 times	>39 times	
Urban	OF	84	14	12	110
	EF	91.30	9.20	9.50	110.00
	% of respondents in each category	76.40%	12.70%	10.90%	100.00%
Small town	OF	114	8	13	135
	EF	112.00	11.30	11.70	135.00
	% of respondents in each category	84.40%	5.90%	9.60%	100.00%
Rural	OF	109	9	7	125
	EF	103.70	10.50	10.80	125.00
	% of respondents in each category	87.20%	7.20%	5.60%	100.00%

The chi-square test for independence 6.69, df 4, Cramer's V 0.095, and P>0.10 indicates that there is no significant association between area of growth and life time cigarette smoking.

4.3.2.4.2 The association between area of growth and life time alcohol drinking

Table 4.32 reveals that the proportions (25.50% and 15.50%) of respondents who grew up in urban areas who reported that they drank alcohol 1 to 39 times and more than 39 times in their life time with OF of 28 and 17, and EF of 27.60 and 18.40 respectively are almost similar to the proportions (25.60% and 17.60%) of respondents who grew up in rural areas who reported that they drank alcohol 1 to 39

times and more than 39 times in their life time with OF of 32 and 22, and EF of 31.40 and 20.90 respectively.

TABLE 4.32: Area of growth and life time alcohol drinking cross tabulation (n=370)

Area of growth		Life time alcohol drinking			Total
		0	1-39 times	>39 times	
Urban	OF	65	28	17	110
	EF	63.90	27.60	18.40	110.00
	% of respondents in each category	59.10%	25.50%	15.50%	100.00%
Small town	OF	79	33	23	135
	EF	78.40	33.90	22.60	135.00
	% of respondents in each category	58.50%	24.40%	17.00%	100.00%
Rural	OF	71	32	22	125
	EF	72.60	31.40	20.90	125.00
	% of respondents in each category	56.80%	25.60%	17.60%	100.00%

The chi-square test for independence 0.27, df 4, Cramer's V 0.019, and P>0.99 indicates that there is no significant association between area of growth and life time alcohol drinking.

4.3.2.4.3 The association between area of growth and life time khat chewing

Table 4.33 reveals that a higher proportion (21.80% and 15.20%) of respondents who grew up in urban areas reported that they chewed khat 1 to 39 times and more than 39 times in their life time with OF of 24 and 21, and EF of 27.70 and 15.20 respectively compared to 22.40% and 7.20% of respondents who grew up in rural areas who reported that they chewed khat 1 to 39 times and more than 39 times respectively in their life time with OF 28 and 9, and EF of 24.70 and 17.20 respectively.

TABLE 4.33: Area of growth and life time khat chewing cross tabulation (n=370)

Area of growth		Life time khat chewing			Total
		0	1-39 times	>39 times	
Urban	OF	65	24	21	110
	EF	73.10	21.70	15.20	110.00
	% of respondents in each category	59.10%	21.80%	19.10%	100.00%
Small town	OF	93	21	21	135
	EF	89.80	26.60	18.60	135.00
	% of respondents in each category	68.90%	15.60%	15.60%	100.00%
Rural	OF	88	28	9	125
	EF	83.10	24.70	17.20	125.00
	% of respondents in each category	70.40%	22.40%	7.20%	100.00%

The chi-square test for independence 9.68, df 4, Cramer's V 0.114, and P<0.05 indicates that there is a significant association between area of growth and life time khat chewing.

To assess the association between the communities where students came from and substance abuse, area of growth was used as one factor as communities in rural areas may differ from communities in urban areas regarding substance abuse. According to CSA [Ethiopia] & ICF International Calverton [Maryland USA] (2012:52), alcohol consumption is higher among urban than rural Ethiopian communities. Gil-Lacruz and Gil-Lacruz (2013:332) reflect this view while studying the impact of culture, norms, and traditions on individuals' behaviour. According to Bannink et al (2015:6), Beck et al (2014:887) and Jaouahir et al (2015:160), students who live in a community where substance of abuse is largely available and substance abuse is a norm are at higher risk of substance abuse. Except for khat chewing, the findings of this study indicate that there is no association between area of growth and substance abuse.

4.3.2.4.4 The association between region of growth and life time cigarette smoking

Three regions of growth, which comprises about 20% of the sample, namely Addis Ababa, Harar, and Dire Dawa were excluded from this analysis as respondents from

these regions show negligible prevalence of substance abuse and including these regions in the analysis results in violation of the chi-square analysis assumption, at least 80% of the EF cells of the table would have expected values 5 or more.

Table 4.34 reveals that almost similar proportion of respondents smoke cigarette in all regions of growth with 9.00% and 7.70% of respondents who grew up in north Ethiopia, 2.70% and 11.00% of respondents who grew up in south Ethiopia, 11.40% and 9.60% of respondents who grew up in east Ethiopia, an equal proportion of 5.10% of respondents who grew up west Ethiopia, and 8.00% and none of respondents who grew up in central Ethiopia reported that they smoked cigarette 1 to 39 times and more than 39 times in their life time with OF of 7 and 6, 2 and 8, 13 and 11, an equal number of 2, and 2 and 0, and EF of 6.20 and 6.40, 5.80 and 6.00, 9.00 and 9.40, 3.10 and 3.20, and 2.00 and 2.10 respectively.

TABLE 4.34: Region of growth and life time cigarette smoking cross tabulation (n=329)

Region of growth		Life time cigarette smoking			Total
		0	1-39 times	>39 times	
North Ethiopia	OF	65	7	6	78
	EF	65.40	6.20	6.40	78.00
	% of respondents in each category	83.30%	9.00%	7.70%	100.00%
South Ethiopia	OF	63	2	8	73
	EF	61.20	5.80	6.00	73.00
	% of respondents in each category	86.30%	2.70%	11.00%	100.00%
East Ethiopia	OF	90	13	11	114
	EF	95.60	9.00	9.40	114.00
	% of respondents in each category	78.90%	11.40%	9.60%	100.00%
West Ethiopia	OF	35	2	2	39
	EF	32.70	3.10	3.20	39.00
	% of respondents in each category	89.70%	5.10%	5.10%	100.00%
Central Ethiopia	OF	23	2	0	25
	EF	21.00	2.00	2.10	25.00
	% of respondents in each category	92.00%	8.00%	0.00%	100.00%

The chi-square test for independence 8.96, df 8, Cramer's V 0.117, and P>0.10 indicates that there is no significant association between region of growth and life time cigarette smoking.

4.3.2.4.5 The association between region of growth and life time alcohol drinking

Table 4.35 reveals that a higher proportion (38.50% and 25.60%) of respondents who grew up in north Ethiopia drank alcohol with OF of 30 and 20, and EF of 20.40 and 13.30 respectively compared to respondents from other regions. Twenty one point nine per cent and 20.50% of respondents who grew up in south Ethiopia, 28.20% and 15.40% of those who grew up west Ethiopia, and 40.00% and 12.00 of respondents who grew up in central Ethiopia reported that they drank alcohol 1 to 39 times and more than 39 times in their life time with OF of 16 and 15, 11 and 6, and 10 and 3, and EF of 19.10 and 12.40, 10.20 and 6.60, and 6.50 and 4.30 respectively. Sixteen point seven and 10.50% of respondents, who grew up in east Ethiopia reported the least prevalence of alcohol drinking with OF 19 and 12, and EF 29.80 and 19.40 respectively.

TABLE 4.35: Region of growth and life time alcohol drinking cross tabulation (n=329)

Region of growth		Life time alcohol drinking			Total
		0	1-39 times	>39 times	
North Ethiopia	OF	28	30	20	78
	EF	44.30	20.40	13.30	78.00
	% of respondents in each category	35.90%	38.50%	25.60%	100.00%
South Ethiopia	OF	42	16	15	73
	EF	41.50	19.10	12.40	73.00
	% of respondents in each category	57.50%	21.90%	20.50%	100.00%
East Ethiopia	OF	83	19	12	114
	EF	64.80	29.80	19.40	114.00
	% of respondents in each category	72.80%	16.70%	10.50%	100.00%
West Ethiopia	OF	22	11	6	39
	EF	22.20	10.20	6.60	39.00
	% of respondents in each category	56.40%	28.20%	15.40%	100.00%
Central Ethiopia	OF	12	10	3	25
	EF	14.20	6.50	4.30	25.00
	% of respondents in each category	48.00%	40.00%	12.00%	100.00%

The chi-square test for independence 29.52, df 8, Cramer's V 0.212, and P<0.005 indicates that there is a significant association between region of growth and life time alcohol use.

4.3.2.4.6 The association between region of growth and life time khat chewing

Table 4.36 reveals that less proportions (15.40% and 3.80%) of respondents who grew up in north Ethiopia reported that they chewed khat 1 to 39 times and more than 39 times with OF of 12 and 3, and EF of 15.90 and 9.20 respectively compared to respondents from the rest of the regions. Thirteen point seven and 16.40% of respondents who grew up in south Ethiopia, 17.90% and 7.70% of those who grew up west Ethiopia, and 20.00% and 4.00 of respondents who grew up in central Ethiopia reported that they chewed khat 1 to 39 times and more than 39 times in their life time with OF of 10 and 12, 7 and 3, and 5 and 1, and EF of, 14.90 and 8.70, 7.90 and 4.60, and 5.10 and 3.00 respectively. 28.90% and 17.50% of respondents who grew up in east Ethiopia with OF of 33 and 20, and EF of 23.20 and 13.50

reported a higher proportion of 1 to 39 times and more than 39 times respectively compared to the rest of the respondents from other regions.

TABLE 4.36 Region of growth and life time khat chewing cross tabulation (n=329)

Region of growth		Life time khat chewing			Total
		0	1-39 times	>39 times	
North Ethiopia	OF	63	12	3	78
	EF	52.90	15.90	9.20	78.00
	% of respondents in each category	80.80%	15.40%	3.80%	100.00%
South Ethiopia	OF	51	10	12	73
	EF	49.50	14.90	8.70	73.00
	% of respondents in each category	69.90%	13.70%	16.40%	100.00%
East Ethiopia	OF	61	33	20	114
	EF	77.30	23.20	13.50	114.00
	% of respondents in each category	53.50%	28.90%	17.50%	100.00%
West Ethiopia	OF	29	7	3	39
	EF	26.40	7.90	4.60	39.00
	% of respondents in each category	74.40%	17.90%	7.70%	100.00%
Central Ethiopia	OF	19	5	1	25
	EF	16.90	5.10	3.00	25.00
	% of respondents in each category	76.00%	20.00%	4.00%	100.00%

The chi-square test for independence 23.19, df 8, Cramer's V 0.188, and $P<0.005$ indicates that there is a significant association between region of growth and life time khat chewing.

Region of growth was taken as a second factor to assess the association between the communities where the students came from and substance use. This is because the culture of Ethiopian community regarding substance abuse differs from region to region. For example, the 2012 EDHS reports that the prevalence of alcohol consumption was only 2% for women and 5% for men in Ethiopian eastern region (Somalia) compared to 86% for women and 91% for men in Ethiopian northern region (Tigray) (Central Statistical Agency [Ethiopia] & ICF International Calverton [Maryland USA] 2012:52). The prevalence of khat chewing also showed significant

difference between regions where only 4% of men in north Ethiopian (Tigray) reportedly chew khat compared to 82% of men in east Ethiopia (Harari). In this study, while prevalence of lifetime alcohol drinking among respondents from north Ethiopia was 64.10%, the prevalence among respondents from east Ethiopia was 27.20% and this difference is statistically significant. Similarly, while the prevalence of lifetime khat chewing among respondents from east Ethiopia was 46.40%, the prevalence among respondents from north Ethiopia was 19.20% and this difference is statistically significant. From the findings of this study, alcohol drinking is more common among respondents from northern Ethiopia while khat chewing is common among students from eastern Ethiopia. Thus tailoring interventions to the types of substances and the regions where the students come from is important at the target university.

4.3.2.4.7 The association between religious affiliation and life time cigarette smoking

Two religious affiliations, wakefeta (with only three respondents affiliated to) and Roman Catholic (with only seven followers affiliated to) were excluded from this analysis as respondents from these religions show negligible prevalence of substance abuse and including these religions in the analysis results in violation of the chi-square analysis assumption, at least 80% of the EF cells of the table would have expected values 5 or more.

Table 4.37 reveals that a slightly fewer proportions (3.60% and 5.50%) of respondents who are Protestant affiliated reported that they smoked cigarette 1 to 39 times and more than 39 times compared to respondents who follow the rest of the religions with OF of 2 and 3, and EF of 4.90 and 4.70 respectively. Eight point sixty per cent and 7.50% of respondents who are Orthodox Christian affiliated, and an equal proportion of 11.10% of respondents who are Muslim affiliated reported that they smoked cigarette 1 to 39 times and more than 39 times in their life time with OF of 15 and 13, and equal number of 16, and EF of 15.40 and 14.90, and 12.70 and 12.40 respectively.

TABLE 4.37: Religious affiliation and life time cigarette smoking cross tabulation (n=373)

Religious affiliation		Life time cigarette smoking			Total
		0	1-39 times	>39 times	
Orthodox Christian	OF	146	15	13	174
	EF	143.70	15.40	14.90	174.00
	% of respondents in each category	83.90%	8.60%	7.50%	100.00%
Protestant	OF	50	2	3	55
	EF	45.40	4.90	4.70	55.00
	% of respondents in each category	90.90%	3.60%	5.50%	100.00%
Muslim	OF	112	16	16	144
	EF	118.90	12.70	12.40	144.00
	% of respondents in each category	77.80%	11.10%	11.10%	100.00%

The chi-square test for independence 5.39, df 4, Cramer's V 0.085, and P>0.10 indicates that there is no significant association between religious affiliation and life time cigarette smoking.

4.3.2.4.8 The association between religious affiliation and life time alcohol drinking

Table 4.38 reveals that higher proportions (43.70% and 23.60%) of respondents who are Orthodox Christian affiliated reported that they drank alcohol 1 to 39 times and more than 39 times with OF of 76 and 48, and EF of 44.30 and 29.40 respectively compared to the respondents who follow the rest of the religions. Twenty per cent and 12.70% of respondents who are Protestant affiliated, and an equal proportion of 5.60% of respondents who are Muslim affiliated reported that they drank alcohol 1 to 39 times and more than 39 times in their life time with OF of 11 and 7, and equal number of 8, and EF of 14.00 and 9.30, and 36.70 and 24.30 respectively.

TABLE 4.38: Religious affiliation and life time alcohol drinking cross tabulation (n=373)

Religious affiliation		Life time alcohol drinking			Total
		0	1-39 times	>39 times	
Orthodox Christian	OF	50	76	48	174
	EF	100.30	44.30	29.40	174.00
	% of respondents in each category	28.70%	43.70%	27.60%	100.00%
Protestant	OF	37	11	7	55
	EF	31.70	14.00	9.30	55.00
	% of respondents in each category	67.30%	20.00%	12.70%	100.00%
Muslim	OF	128	8	8	144
	EF	83.00	36.70	24.30	144.00
	% of respondents in each category	88.90%	5.60%	5.60%	100.00%

The chi-square test for independence 119.52, df 4, Cramer's V 0.400, and P<0.005 indicates that there is a significant association between religious affiliation and life time alcohol drinking.

4.3.2.4.9 The association between religious affiliation and life time khat chewing

Table 4.39 reveals that fewer proportions (10.90% and 5.50%) of respondents who are Protestant affiliated reported that they chewed khat 1 to 39 times and more than 39 times respectively with OF of 6 and 3, and EF of 10.60 and 7.50 respectively compared to the respondents who follow the rest of religions. On the other hand, relatively higher proportions (24.30% and 25.70%) of Muslim affiliated students reported that they chewed khat 1 to 39 times and more than 39 times respectively with OF of 35 and 37, and EF of 27.8 and 19.70 respectively compared to the respondents who follow the rest of religions. Seventeen point eighty per cent and 6.30% of respondents who are Orthodox Christian affiliated, reported that they chewed khat 1 to 39 times and more than 39 times in their life time with OF of 31 and 11, and EF of 33.60 and 23.80.

TABLE 4.39: Religious affiliation and life time khat chewing cross tabulation (n=373)

Religious affiliation		Life time khat chewing			Total
		0	1-39 times	>39 times	
Orthodox Christian	OF	132	31	11	174
	EF	116.60	33.60	23.80	174.00
	% of respondents in each category	75.9%	17.80%	6.30%	100.00%
Protestant	OF	46	6	3	55
	EF	36.90	10.60	7.50	55.00
	% of respondents in each category	83.60%	10.90%	5.50%	100.00%
Muslim	OF	72	35	37	144
	EF	96.50	27.80	19.70	144.00
	% of respondents in each category	50.00%	24.30%	25.70%	100.00%

The chi-square test for independence 39.41, df 4, Cramer's V 0.230, and P<0.005 indicates that there is a significant association between religious affiliation and life time khat chewing.

Religious affiliation was taken as one factor to assess the association between the communities where the respondents came from and substance abuse. This is because substance abuse may vary from community to community based on religious affiliation. For example, alcohol is culturally used to celebrate social events in many Christian communities while khat is used for similar purpose in Muslim communities and the type of substances abused among Christian and Muslim students follow the same trend (WHO [Sa]:33). In this study, while the prevalence of lifetime alcohol drinking among Orthodox Christian follower respondents was 71.30%, the prevalence among Muslim follower respondents was only 11.20% and this difference is statistically significant. Similarly, while the prevalence of lifetime khat chewing among Muslim respondents was 50%, the prevalence among Orthodox Christian followers was 24.10% and this difference was statistically significant. However, regarding cigarette smoking, there was statistically significant difference among the different religions.

4.3.2.5 The association between factors at institution level and substance abuse

In this section, the students' Grade Average Point, which indicates their academic performance, was examined in relation to substance abuse among the students.

4.3.2.5.1 The association between academic performance and life time cigarette smoking

Table 4.40 reveals that almost similar proportions (8.60% and 8.00%) of respondents who scored less than 3 in their last cumulative Grade Point Average and 9.40% and 8.30% of respondents who scored 3 and above last cumulative Grade Point Average reported that they smoked cigarette 1 to 39 times and more than 39 times in their life time with OF of 14 and 13, and 17 and 15 and EF of 14.70 and 13.30, and 16.30 and 14.70 respectively.

TABLE 4.40: Last Grade Point Average and life time cigarette smoking cross tabulation (n=343)

Last Grade Point Average		Life time Cigarette smoking			Total
		0	1-39 times	>39 times	
<3	OF	136	14	13	163
	EF	135.00	14.70	13.30	163.00
	% of respondents in each category	83.40%	8.60%	8.00%	100.00%
3 and above	OF	148	17	15	180
	EF	149.00	16.30	14.70	180.00
	% of respondents in each category	82.20%	9.40%	8.30%	100.00%

The chi-square test for independence 0.098, df 2, Cramer's V 0.017, and P>0.95 indicates that there is no significant association between academic performance and life time cigarette smoking.

4.3.2.5.2 The association between academic performance and life time alcohol drinking

Table 4.41 reveals that slightly higher proportions (29.40% and 17.20%) of respondents who scored less than 3 of last cumulative Grade Point Average

reported that they drank alcohol 1 to 39 times and more than 39 times in their life time with OF of 48 and 28, and EF of 42.30 and 26.60 respectively compared to 22.80% and 15.60% of respondents who scored 3 and above last cumulative Grade Point Average with OF of 41 and 28, and EF of 46.70 and 29.40 respectively.

TABLE 4.41: Last Grade Point Average and life time alcohol drinking cross tabulation (n=343)

Last Grade Point Average		Life time alcohol use			Total
		0	1-39 times	>39 times	
<3	OF	87	48	28	163
	EF	94.1	42.3	26.6	163.0
	% of respondents in each category	53.4%	29.4%	17.2%	100.0%
3 and above	OF	111	41	28	180
	EF	103.9	46.7	29.4	180.0
	% of respondents in each category	61.7%	22.8%	15.6%	100.0%

The chi-square test for independence 2.62, df 2, Cramer's V 0.087, and P>0.10 indicates that there is no significant association between academic performance and life time alcohol drinking.

4.3.2.5.3 The association between academic performance and life time khat chewing

Table 4.42 reveals that slightly fewer proportions (17.20% and 13.50%) of respondents who scored less than 3 in last cumulative Grade Point Average reported that they chewed khat 1 to 39 times and more than 39 times in their life time with OF of 28 and 22, and EF of 31.80 and 20.90 respectively compared to 21.70% and 12.20% of respondents who scored 3 and above last cumulative Grade Point Average with OF of 39 and 22, and EF of 35.20 and 23.10 respectively.

TABLE 4.42: Last Grade Point Average and life time khat chewing cross tabulation (n=343)

Last Grade Point Average		Life time khat chewing			Total
		0	1-39 times	>39 times	
<3	OF	113	28	22	163
	EF	110.30	31.80	20.90	163.00
	% of respondents in each category	69.30%	17.20%	13.50%	100.00%
3 and above	OF	119	39	22	180
	EF	121.70	35.20	23.10	180.00
	% of respondents in each category	66.10%	21.70%	12.20%	100.00%

The chi-square test for independence 1.12, df 2, Cramer's V 0.057, and P>0.10 indicates that there is no significant association between academic performance and life time khat chewing.

Academic competition is one of the factors that determine substance abuse at institutional level. According to NIDA (2014:3), as the concept of doping is known in the field of athletics, the concept of cognitive enhancement is gaining ground in the society of academia. In this study, there is no statically significant association between academic performance and lifetime substance abuse among respondents.

4.3.2.6 Descriptive analysis of the open-ended questions with the aim of elaborating the effect of factors at institutional and societal levels

In this section, factors at societal level that are emerged from the open-ended questions were elaborated. The analysis of the findings from the open-ended questions was descriptive as the identified factors have almost similar role for all students from every region or area of the country.

4.3.2.6.1 Respondents' knowledge about the policy/rule of the university regarding substance abuse

Only 296 respondents replied to this question. Table 4.43 reveals that of those who replied to this question, the majority (n=233; 56.90%) of respondents reported that they know a policy/rule in their university that restricts possession and/or abuse of any addictive substance in the university campus. While (n=19; 4.80%) of

respondents claimed that there is no any policy/rule in the university that governs substance abuse, (n=54; 13.80%) of respondents reported that they do not know if there is any policy/rule on substance at the target University.

TABLE 4.43: Respondents' knowledge of university's policies to prevent substance abuse (n=296)

Respondents' response	Frequency	Percent
Yes, possessing and/abusing any type of addictive substance is not allowed in the university's compound	223	56.90
There is no any policy/rule at this university	19	4.80
I do not know if there is any policy/rule at the university	54	13.80

The fact that only 56.90% of respondents indicated that they know that there is a policy/rule or regulation that prohibits substance abuse at the university heralds that the university needs to educate its students on the policies/rules or regulations that govern substance abuse. Sattler et al (2013:7) advocate for developing strong university honour codes that prohibit substance abuse in the university campuses. They argue that when students expect stronger sanctions, they respect the academic integrity and policy of their university (Sattler et al 2013:7). Gebreslassie et al (2013:8) also recommend strict control of substance entrance to university compounds. Talks (2012:590, 592) advocates for conducting mandatory drug testing on university students to screen for misuse of prescribed psychoactive drugs. The findings of the current study indicate that a significant number of respondents are unaware of the university rules/policies regarding substance abuse. This demands the university to orient students on its policies regarding substance abuse.

4.3.2.6.2 Respondents' opinion regarding factors that promote substance abuse among students at the target University

Only 238 respondents replied to this question. Table 4.44 reveals that of those replied to this question, most (n=83; 21.20%) of respondents reported the ease of access to addictive substances such as khat, cigarette, and alcohol as these materials are sold at the gate of the campus promotes substance abuse. While (n=55; 14.00%) and (n=44; 11.20%) of respondents claimed that academic pressure and lack of recreational options and venues in the campus respectively contribute for substance abuse, (n=15; 3.80%) and (n=26; 6.60%) of respondents reported that

lack of appropriate rules and regulations that govern the issue of substance abuse at the university and peer pressure respectively contribute to substances abuse among students. Eighteen; 4.60% of respondents indicated that they do not know any factor that promote substance abuse among students in the campus. Sixteen; 4.10% and (n=5; 1.30%) of respondents reported that there is no any factor that promote substance abuse and the fact that substances like khat are commonly abused in the local community contributes to substance abuse among the university students respectively.

TABLE 4.44: Respondents' knowledge on factors that promote substance abuse in/around the university (n=238)

Respondents' response	Frequency	Percent
The ease of access to substances such as khat, cigarette, and alcohol as these materials are sold at the gate of the campus promotes substance abuse.	83	21.20
Academic pressure	55	14.00
Lack of recreational options and venues for students in the campus	44	11.20
Lack of appropriate rules/regulations that govern substance abuse or lack of strict application of the rules	15	3.80
Peer pressure	26	6.60
The abuse of substances such as khat is common in the local community	5	1.30
There is no any factor that promotes substance abuse	16	4.10
I do not know any factor that promotes substance abuse	18	4.60

The fact that a substantial number (21.20%) of respondents reported that addictive substances such as khat, cigarette, and alcohol are accessible for students at the gate of the campus indicates that the university needs to control the market of such substances. According to Mackert et al (2014:274) and NIDA (2014:3), the widespread availability of addictive substances around the university campus is an important factor for substance abuse among university students. Gathuru et al (2015:276) argue that shisha, cigarette, and other addictive substances sell should be prohibited around university campuses. The easily accessibility of addictive substances in/around the university is evidently seen in this study. This demands control of addictive substances on the part of the university.

4.3.2.6.3 Respondents' knowledge about national policies/rules/regulations that help the prevention of substance abuse

Only 173 respondents replied to this question. Table 4.45 reveals that of those who replied to this question, most (n=110; 28.10%) of respondents reported that they do not know any policy/rule or regulation regarding substance abuse at national level. While (n=31; 7.90%) of respondents reported that they know that substance abuse is crime, (n=21; 5.40%) reported that they know that substance trafficking is crime in Ethiopia. Eleven; 2.80% of respondents also reported that they know that smoking in public areas is not allowed in Ethiopia.

TABLE 4.45: Respondents' knowledge on national policies/rules/regulations that help the prevention of substance abuse (n=173)

Respondents' response	Frequency	Percent
I do not know any policy/rule or regulation regarding substance abuse at national level	110	28.10
I know that drug abuse is crime in Ethiopia	31	7.90
I know that substance trafficking is crime in Ethiopia	21	5.40
I know that smoking in public areas is not allowed in Ethiopia	11	2.80

Sattler et al (2013:7) maintain that the general society, politics, and legislations must collaboratively work to prevent substance abuse in the society including among university students. Sattler et al (2013:7) recommend policy makers to design policies, regulations, and guidelines that can influence the internalised norms within a society. The fact that the majority of respondents who replied to this question do not know any national policy that govern substance abuse calls for efforts by the university, pre-university school officials, and other public health officials on educating students on the health and legal impacts of substance abuse.

4.3.2.6.4 Respondents' suggestion on preventing substance abuse among university students

Only 283 respondents replied to this question. Table 4.46 reveals that of those who replied to this question, (n=152; 39.10%) and (n=151; 38.30%) of respondents suggested giving health education regarding the impact of substance abuse and designing and applying appropriate rules and regulations to control substance abuse can help in prevention of substance abuse among university students. while (n=34;

8.70%) recommended provision of alternative recreational options and venues, (n=5; 1.30%) of respondents suggested control of the markets of substances that are found around the university would contribute to the prevention of substance abuse among university students.

TABLE 4.46: Respondents' opinion on ways of preventing substance abuse among university students?' (n=283)

Respondents' response	Frequency	Percent
Providing health education regarding the impact of substance abuse to the university students	152	39.10
Design appropriate rules and regulations, and apply them properly	151	38.30
Provide alternative recreational options/venues	34	8.70
Control of substance markets that are found around the university campus	5	1.30

The suggestions of respondents in this study agree with the suggestions from several scholarly literatures. Authors like Bennett and Holloway (2014:452) claim that education and awareness campaign is one of the most common interventions to prevent substance abuse in universities. A scholarly summit in greater Philadelphia criticises the lack of legitimacy on campus police officers to investigate the possible involvement of students with illicit substance abuse (Andes et al 2014:32). The findings of current study suggest that tailored interventions are required at different levels including at the university, at the community and at the society at large.

4.4 CONCLUSION

This chapter presented the analysis and interpretation of the quantitative part of the study. Except for few rearrangements for logical flow of the data, the chronological order of the data was conducted based on the order of questions presented in the questionnaire. The chapter first presented demographic data of respondents, then the descriptive analysis of the data ending with the inferential analysis of the data. The inferential analysis of the data sought for associations between substance abuse and components of Social Ecological Model. The association between the factors that are embedded in the Social Ecological Model and the behaviour of substance abuse was assessed using non-parametric chi-square test statistics. However, factors at institutional and national level were explored descriptively rather than determining their association with substance abuse. This is because these

factors are common to all students in the campus and no comparison could be made among the respondents. The association between components of Social Ecological Model and substance abuse was explored taking only the most prevalent substances among the respondents which are cigarette smoking, alcohol drinking, and khat chewing. This is because the rest of the substances are very rare among the respondents and are not eligible for inferential statistical analysis.

CHAPTER 5

PRESENTATION AND DISCUSSION OF THE RESULTS FROM QUALITATIVE DATA (PART 2)

5.1 INTRODUCTION

The presentation and discussion of the quantitative strand of the study were discussed in chapter 4. This chapter presents the results and discussion of the qualitative strand of the study. The data analysis was done using ATLAS.ti version 7.1 as mentioned in chapter 3. Face-to-face interviews were conducted with 16 individuals, who have different academic backgrounds and provide different services to undergraduate students at the target University. Two of the interviewees gave the interview in English. Thus, the researcher used quotation marks only while quoting the statements from the participants who gave the interview in English as these statements are the direct statements of the participants.

The results in this chapter are presented in two sections namely: Demographic characteristics of participants and main research findings.

5.2 DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

The participants in the qualitative part of this study were purposefully selected from the target University officials, representative of students, and health care professionals who provide health service to the students. The participants were selected using a purposive snowball sampling technique as mentioned in detail in chapter 3. The demographic characteristics of the participants are presented in table 5.1.

Table 5.1: Demographic characteristics of participants in the qualitative element of the study (n = 16)

Participants' code	Age (in full years)	Sex	Academic background	Job/position of participants	Years of experience in the current position
1	58	Male	BSc in Psychiatry	Psychiatric nurse at the target Hospital	15 years
2	34	Male	BSc in Psychiatry	Psychiatric nurse at the target hospital	7 years
3	32	Male	BSc in Psychiatry	Psychiatric nurse at the target Hospital	5 years
4	35	Male	MSc in clinical psychology	Lecturer at the department of psychology at the target University and has assumed guidance officer at least for 1 year at the office of guidance and counselling at the target University	6 years
5	33	Male	MSc in clinical Psychology	Lecturer at the department of psychology at the target University and has assumed guidance officer at least for 1 and half year at the office of guidance and counselling at the target University	5 years
6	39	Male	MSc in Sociology	Lecturer at the department of social sciences at the target University and has assumed guidance officer at least for 11 months at the office of guidance and counselling at the target University	4 years
7	37	Female	MSc in Psychiatry	Lecturer at the department of medicine and health sciences at the target University and has assumed	6 years

				guidance officer at least for 2 year at the office of guidance and counselling at the target University	
8	35	Female	MSc in Psychiatry	Lecturer at the department of medicine and health sciences at the target University and assumes head of gender office at the target University for 2 years	7 years
9	31	Male	BSc in medicine	A doctor at students' clinic at the target University	4 and half years
10	27	Female	BSc in clinical nursing	A clinical nurse at students' clinic at the target University	3 years
11	36	Male	MSc in physics	Dean of the office of students' dean at the target University	4 years
12	47	Male	MSc in Sociology	Member of university management at the target University	3 and half years
13	42	Male	MSc in Psychology	Member of university management at the target University	4 years
14	25	Male	Final year undergraduate student at the department of engineering at the target University	Member of students' union at the target University	2 years
15	24	Male	Final year undergraduate student at the department of psychology at the target University	Representative of HIV/AIDS Club at the target University	3 years

16	23	Male	Final year undergraduate student at the department of sociology at target University	Representative of HIV/AIDS Club at the target University	3 years
Total = 16	Age: 20-29=4 30-39=9 40-49=2 50-59=1	Sex: Male=13 Female =3	Academic background: Undergraduate students=3 BSc=5 MSc=8	Job/position: Students=3 Psychiatric nurses=3 Medical doctor=1 Clinical nurse=1 Gender officer and lecture=1 Guidance and counselling officers and lectures=4 Deans of students' dean=3	Years of experience in the current position: 1-9=15 10-20=1

5.3 RESEARCH FINDINGS

The findings of the qualitative strand of the study are discussed under six themes which emerged from data analysis. The findings of the qualitative strand of this study indicate that substance abuse is a major problem among university students. Some of the participants claimed that substance abuse among university students is high. Some students start using university as the university campus is a compound where many youths get together. Some of the statements from the participants are:

> *I believe that we have reached a point when it is very much shameful to speak about prevalence of substance abuse in this university. Especially khat, cigarette and alcohol, they are extremely prevalent*. *The student who enter the university with substance abuse usually graduate with their problem and many of those who enter the campus without this type of problem graduate with substance abuse problem.* (Participant 11)

Participants mention that there are students who terminated their studies due to substance abuse disorder

> *I remember a student who was totally addicted and developed substance abuse disorder two years ago. He developed disorder to the extent that he can't speak. He became extremely devastated. He stopped his classes, we tried a lot of options to assist him end ended up referring him to the hospital, but could not be helped. He ended up terminating the study and go home.* (Participant 5)

The grave nature of substance abuse among university students is supported by contemporary literatures. Bennett and Holloway (2014:454) indicate that many factors including freedom from adult supervision, psychological stressors related to the demand to adapt to new environment and academics, and making new friends pose university students at a greater risk of substance abuse. Rosenberg et al (2011:736) also report surveys of large variations of American university students which indicate a prevalence of 40-45% of periodic binge drinking among American university students.

The participants of this study commented that youths are the backbone of the development programmes of a country and substance abuse among the youth including university students could undermine their contribution to the development of a country. In line with this point, participant 3 stated that:

> *The youth is the backbone of the economy and growth of a country. They youths have energy, knowledge, and capability and thus have the ability to be the actor of the country's development process. Thus, if the youths spend most of their time in work and creativity instead of on substance abuse, this contributes a lot to the development of the country. If the youths spend their time in substance use, they will use the little money that they get by working small jobs for buying substances and this will harm the youths and the country's development.*

Consistent with these findings, literatures indicate that focusing on youths' health should be the hub of the development strategies of the developing society as they

form a large proportion of the societies (Boltena et al 2012:1; Mehra 2013:13; Yigzaw et al 2014:260). Table 5.2 presents the themes and sub-themes.

Table 5.2: Themes and sub-themes emerged from the qualitative data

Themes	Sub-themes
Theme1: Intrapersonal factors related to substance abuse	1.1: Personal commitment 1.2: The age of the students
Theme 2: Interpersonal factors related to substance abuse among students	2.1: The Family 2.2: Peer pressure
Theme 3: The community in relation to substance abuse among students	3.1: The availability and chewing of khat in the community where the university is found 3.2: The religiousness of the students
Theme 4: The institution in relation to substance abuse among students	4.1: Stressful situation in the institution 4.2 Academic competition 4.3 Substance abuse among instructors of the institution

Theme 5: Intervention options at institutional level	5.1 Commitment on the part of the university officials 5.2: Providing healthy recreational options at the university campus 5.3: Coordinating all parties that work on prevention of substance abuse 5.4: Establishing and strengthening anti-substance use clubs 5.5: Strengthening law enforcement 5.6: Modifying the students' clinic
Theme 6: Factors that determine substance abuse and Interventions at Society Level	6.1: Developing and implementing effective policy and guidelines at national level 6.2: Establishing rehabilitation centres at regional level

5.3.1 Theme 1: Intrapersonal factors related to substance abuse among students

Some of the participants are of the opinion that intrapersonal rather than external factors determine substance abuse among individuals. This theme has emerged with the following sub-themes.

5.3.1.1 Sub-theme 1.1 Personal commitment

Participants of this study commented that substance abuse is about personal commitment. According to some of the participants, rather than external factors, the personal decision of an individual student plays the major role whether he/she engages in substance abuse. Participants also claim that some students consider substance abuse as a sign of maturity and modernity. Some of the responses of participants are:

> *''...even if the university had the best lounge, they [the students] will go to town to search for the beer. The decision is inside the mind. They will prefer to go to beer stores instead of to the entertainment areas. So I believe substance use is personal decision."* (Participant 4)

> *''The reason is that some times to become modern. When they don't use substance, they feel that they are not modern persons."* (Participant 6)

Consistent with the findings of this study, Glozah et al (2015:1) claim that self-efficacy is an important factor at intrapersonal level that determines whether an individual engages or not in risky behaviours including substance abuse. Researchers also indicate that individual traits such as novelty seeking make students engage in substance abuse (Bannink et al 2015:6).

According to some of the participants, the institution prepares life skill trainings to support students on how to prevent themselves from substance abuse but most of the students are not willing to participate. Some of the participants indicated that the students are busy studying day and night and could not get time for training and counselling sessions. The direct response from a participant was:

‘‘The students are challenging. We organise programmes to train the students but the students do not attend most of the programmes. So it is not easy to educate the students on the consequences of substance abuse. The other issue is that students are always busy on their studies; they are busy from semester to semester, week to week, day and night. They will not have time to think about themselves. They may not get time for themselves.’’ (Participant 4)

The findings of this study are consistent to previous reports. The modified Social Stress Model states that the more a person has risk factors the more likely the person to begin and continue with substance abuse and the more a person has protective factors, the less likely the person is to become involved with substance abuse (WHO [Sa]:27).

5.3.1.2 Sub-theme 1.2: The age of the students

Most of the undergraduate students at the target University are at the age of 18 to 25 years. Some of the participants alluded that the fact that the students are young people contributes to their experimentation with substance abuse. The followings are extracted from the participants’ statements.

Students attend the university at a very young age - about 18 years, this means they have many feelings and they may go through different life paths. (Participant 1)

...because the university is accepting young people who are at the fire age, so, the officials should give enough attention to this issue [the issue of substance abuse among students]. (Participant 3)

‘‘...especially in college, students abuse substance because they see it as sign of maturity. They abuse it because the youths have tendency to experiment with everything.’’ (Participant 6)

Consistent with these findings, a handful of literatures indicate that young university students go through physical, psychological, and social changes which predispose them to be involved in substance experimentation (NIDA 2014:3; WHO [Sa]:30).

To the contrary, some participants are of the opinion that the students' being at young age is helpful for guiding and shaping their behaviour so that they will remain substance free. This is especially important when one understands that most of the undergraduate university students are substance naive. Participant 1 stated that:

> *If students are given appropriate adaptation counselling starting at first year, they may not get serious problem related to substance abuse. The campus is secondary home for the students. The students are very young. They join the university by the age of 17, 18, 19 years. So, the campus is second home to the students and they need to be supported. If they get appropriate support, they will not enter into substance abuse.*

The increment of the risk of substance abuse with age is supported by other studies too. For example, Rozenbroek and Rothstein (2011:361) reported that students of age 20 and above were more likely than younger ones to engage in prescribed drugs abuse. Moreover, the risk of substance abuse among vocational education students in Netherlands was found to increase with their ages (Bannink et al 2015:6). Chavez-Palacios et al (2012:18) also argue that university students are the best targets for interventionists who want to correct the misperception about substances as the young university students are out of the firmly entrenched beliefs and attitudes of their society.

5.3.2 Theme 2: Interpersonal factors related to substance abuse among students

Interpersonal relations including family and peer influence as a factor for substance abuse among undergraduate students emerged as a third theme in the qualitative part of this study. The following sub-themes emerged during the analysis of this theme.

5.3.2.1 Sub-theme 2.1: The Family

Some participants consider family members of students as important factors that determine the behaviour of substance abuse. Parents can shape the behaviour of their children making them to be free of substance abuse during their university stay.

Moreover, substance abuse among family members may determine the involvement of a student with substance abuse. This is how participants responded:

> *I have realised that most of the students, especially those from the eastern community abuse substance and they [the parents] will not have the moral to control their children as they are also abusing substances. So, this needs the commitment on the part of the families.* (Participant 10)

> *For example, if the father is smoking cigarette and/or chewing khat in front of children but tries to teach his children, that will not be effective. Some of the students say that they have started chewing khat because their fathers are also doing the same.* (Participant 12)

In their analysis of the relationship between parents' affection to their children and the involvement of the children with substance abuse, Jurcik et al (2013:259-260) report that students with neglectful parenting were more likely to have low risk perception and engage in substance abuse than those with affectionate parenting. The study on undergraduate students at Hawassa University adds that students who reported that their family abuse psychoactive substances were more than 2 times likely to abuse psychoactive substances compared to those students who reported that their families do not abuse (Kassa et al 2014:4).

5.3.2.2 Sub-theme 2.2: Peer pressure

According to the information from the study participants, there is high peer pressure at the target University that drives students to substance abuse. Some students enter into substance abuse just to resemble their peers, who are already substance abusers. If students see that their friends study longer hours using stimulants like khat, they easily succumb into substance abuse. Two participants responded as follows:

> *Peer pressure creates problems; they abuse substance because they want to resemble their friends or not to miss friends. Some of the students may be academically dependent of their friends and they abuse the substances so that they will not miss their helper students.* (Participant 5)

The other reason for abusing substances is peer pressure; especially khat, when they see that their friends are studying longer hours being stimulated by khat, they tend to follow that trend. Their friends may tell them that it helps for reading. (Participant 1)

The findings of this study are in congruence with previous studies regarding the influence of social network on substance abuse. A considerable number of literatures indicate that social network increases the risk of substance abuse when friends, relatives, or lovers use substance (Alsanosy et al 2013:6; Lemelin et al 2014:191). A study conducted by Gebreslassie et al (2013:8) among students at Axum University indicates that students whose friends are substance abusers have higher chance of engaging in substance abuse. Moreover, Birhanu et al (2014:4) account that friends' abuse of substance is positively associated with substance abuse among students at Woreta town. According to this study, students who had friends who abuse substance were 2.14 times more likely to use substance than students who did not have friends who abuse substances (Birhanu et al 2014:5).

5.3.3 Theme 3: The community in relation to substance abuse among students

The fourth theme that emerged from the qualitative data analysis relates substance abuse among students to the community where the target University is situated and the community where most of the undergraduate students at the target University originated. Participants of this study mentioned that the availability of substances like khat around the university in large amount, the higher prevalence of khat chewing among the community where the university is found, the community where most of the university's students originated are important factors for substance abuse among the students. Participants also mentioned the religiousness of students as important factors. The sub-themes that emerged from this theme are discussed as follows.

5.3.3.1 Sub-theme 3.1 the availability and chewing of khat in the community where the university is found

The findings of this study indicate that the availability and abuse of substances in the communities around the university is an important factor. Most of the study participants indicate that the plenty availability of substances like khat and cigarette

and the large number of people who abuse these substances in the community around the university easily pushes students towards substance abuse. One of the participants expressed this as:

> *The other point is the availability of the substances in Jigjiga. The substances are just at the door of the campus. Of course there is a rule in higher education that forbids substance sale within certain kilometres; but the application is not serious. The substances are easily accessible and at a very low price which almost all the students can afford.* (Participant 5)

Supporting this finding, Bannink et al (2015:6) claim that large availability of addictive substances in a community puts adolescents and young adults at higher risk of substance abuse. In their study among European students, Beck et al (2014:887) found that students who live in a community where substance abuse is common are at a higher risk of substance abuse. Jaouahir et al (2015:160) also add that students' engagement with substance abuse is highly associated with their living in a community where substance of abuse is largely available. Gruenewald et al (2013:744) argue that greater number of bars within communities may multiply problems of drinking through several impacts on ecological system underlining alcohol use. OCAT (2014:3) also claim that the ease of access makes substance abuse more appealing to young people. Authors like Lee et al (2014:17) and Gathuru et al (2015:275) criticise the proximity of substance market (e.g hookah bars) to university campuses as it promotes substance abuse among university students.

Though many of the substance items like cigarette, shisa, and alcohol are widely available at Jijiga, khat is mentioned as special substance that is plenty in the town. Two of the statements from the participants are:

> *''Truly speaking the environment itself promotes khat chewing as the khat is abundant at Jigjiga. For example, if you are in Addis Ababa, you will not get khat easily but at Jigjiga, it is very easy to get khat and the community of the town also chews khat very much. Khat is common in the town, the community chews it and this can promote khat chewing''.* (Participant 4)

Especially khat, it is chewed widely in eastern part of Ethiopia [where the target University is found], this is especially common at Jijiga. I think everybody at Jijiga chews khat. So, it is very difficult, yah...it is very difficult to control khat. (Participant 10)

Participants also indicate that there is not any healthy recreational option at the Jigjiga town and thus students can only get recreational centres where substances like khat and alcohol are served. One of the participants stated that:

When students go out of the campus to refresh themselves, the first thing that they get is khat, or pool house or bars where alcohol is served. There is no other recreational option. Example, there is not any swimming pool or even 'kure' [small water pond]. So, the students can only go to bars, night clubs, or khat houses. So these types of environmental conditions can enforce students to enter into the substance abuse till they develop dependence and addiction and other health problems. (Participant 3)

Khat is largely produced in east Africa including Ethiopia (Berhanu et al 2012:1198; Girma, Mossie & Getu 2015:1; Reda et al 2012:1). The 2012 EDHS reports that Somali and Hareri regional states, where the target University is found and the neighbouring region, are the leading states in terms of khat use among adult population in Ethiopia (CSA [Ethiopia] & ICF International Calverton [Maryland USA] 2012:54).

The other point that was mentioned by all of the study participants is the background of the students. According to the study participants, most of the students at the target University are from eastern Ethiopia, where substances (especially khat) use is culturally rooted. Even the influential leaders of the community, the traditional, religious and political leaders of the community use khat for celebration of public holidays. However, it was pointed out that alcohol use in communities around Jijiga is limited and culturally forbidden. Some of the statements of the participants are:

There are many students from around Hararge [an administrative zone in east Ethiopia, a nearby area to the target University]; these are khat chewers from their childhood. Their family send them 600 birr/month, that is 20 birr/day

[about $1/day] just for khat chewing and it is very difficult to control such students [to control khat chewing in these students] and change their behaviour. They will enter where ever hole may be and chew khat. So, in this type of society, it is very difficult to control substance abuse. Khat is very traditional substance in this area and I think that it is very difficult to control khat chewing. Some of the students prefer not to eat food instead of not to chew khat. (Participant 14)

"The first challenge is the culture of the students. Some of the students are from communities with deep rooted culture of chewing khat. These students want to chew khat always and they eat their lunch and they rush to their khat at 6 o'clock. It is difficult to help these students to stop chewing khat. For example, some of the students are from Harerge, it is very difficult to stop khat for these students". (Participant 6)

These findings were evidently seen in other studies too. The study by Gil-Lacruz and Gil-Lacruz (2013:332) shows that culture, norm, and traditions have impacts on individual behaviour as people imitate the habit of life from family, friends, and neighbours. The WHO ([Sa]:31) states that if substances are legally available, they are more likely to be accepted or normalised in the general society. The prevalence of using substances like tobacco, caffeine and alcohol, which are legally available in many parts of the world, is significantly higher than the legally restricted psychotropic medicines (WHO [Sa]:31).

5.3.3.2 Sub-theme 3.2: The religiousness of the students

Most of participants appreciate that many students at the target University go to religious areas and this can play a role in their substance abuse. According to some of the participants, religiousness can be used as one intervention loophole in the endeavours of prevention of substance abuse. The statements from some of the participants are:

There is a programme called 'gibi gubae' in Orthodox followers, 'fellowship' in Protestants followers and 'eserat' in Muslim followers. These are special programmes designed for university students by the religious organisations.

The university respects religious activities but we are not using it [not using the religiousness to prevent substance use]. Religion is good; it keeps from many unnecessary things. Because, it [the religiousness of the students] makes the students go to religious places instead of going to places where substances are sold. So the religious students may positively impact the behaviour of other students in their dormitory. (Participant 14)

We can use religious associations to prevent substance abuse but those who abuse the substance are not affiliated to any religion. They consider themselves as modern people and they want to develop their own philosophical outlook. So, it is possible, but yes for some people. We can use the religious people to influence the others. Surprisingly we are seeing that some of the religious students are advising their friends not to abuse substances. This means they will be positive peer influencers. Our society is a religious society and religion may play great role. (Participant 4)

The role of religion in substance abuse was also stated in the other way round. According to some of the participants, religious leaders are promoting the abuse of some of the substances including alcohol and khat. This may be related to the use of khat for prayer in Muslim religious leaders and the use of alcohol for religious ceremonies in Orthodox Christians. Participant 13 alluded this as:

The religion also contributes to substance abuse. Example, some religion leaders chew khat, the others drink alcohol, the students learn from this substance abuse. The government should have good religion to teach the community.

Some researchers have established the association between students' religious affiliation and substance abuse. For example, alcohol is culturally used to celebrate social events in many Christian communities while khat is used in Muslim community and the type of substances abused among Christian and Muslim students follow the same trends (WHO [Sa]:33). In a study on vocational students in Netherlands, Bannink et al (2015:7) found that students with non-Dutch ethnic backgrounds reported less substance abuse than students with Dutch ethnic backgrounds. Bannink and his colleagues explain that this difference was attributable to the

cultural and religious differences between the two groups.

5.3.4 Theme 4: The institution in relation to substance abuse among students

The university environment promotes substance abuse.

The participants of this study have identified different factors at institutional level leading to the emergence of sub-themes. The sub-themes are discussed under the following subsequent headings.

5.3.4.1 Sub-theme 4.1: Stressful situations in the institution

When the students join the university, they have to pass through different stressful conditions related to adapting to new environment, new academic standard, and new relationships. Some respondents explained that students could be involved in substance abuse to cope with these types of stressful conditions. The direct statements of some of the respondents are:

> *To cope with these disorders [disorders related to the adaptation to the new campus environment], some of them [some of the students] start to abuse substances.* (Participant 7)

> *When the students first join the campus, they are under pressure and anxiety related to being separated from their families, friends and also having to adjust to the academic world. In order to cope with these stressful situations, they abuse substances.* (Participant 8)

According to some of the participants, supporting vulnerable students in their pressing problems other than academic matters is important as these students easily engage in substance abuse to cope with their problems. Participants explained that providing tailored support to students who came from different socio-economic backgrounds contributes towards prevention of substance abuse. This is how participants responded:

> *Helping the students before they are severely affected is good. Helping the students will help reduce the consequences of substance abuse like failure in*

academics, economic crises, health problems, spoiling future life etc. The students are from diverse ethnic backgrounds and each student should be helped to learn from each other. (Participant 2)

Some students may receive bad news from their families; news like someone is sick, someone is harmed etc. And this can induce stress to them. Then they may frustrate and want to abuse substances like khat. They may say: why do I worry this much and why don't I abuse substance like my friends? Why don't I be 'raha' [being refreshed and relaxed]? They start the khat to escape from depression and gradually will become addicts. Then they will encounter many problems in their economy, education, family, health etc. They may totally abandon their studies. The student will frequently require money from family putting the family in financial problem. (Participant 1)

Previous researchers found that stressful events in the university campus could push students towards substance abuse. According to Kurt (2015:842), university years can be seen as challenging period in which compulsive behaviours are likely as youths face many difficulties. Dawson, Grant, Stinson and Chou cited in Lewis et al (2012:371) accentuates that the social environment in university promotes risky drinking.

According to the participants of this study, most students start to abuse substance when they join the university. Participant 15 narrates a history of a student as:

First the boy was very calm and he did not have any habit of substance abuse, He did not have a habit of drinking tea out of his home [he doesn't go to cafe]. He started to abuse the substance when he entered the university.

This finding is in line with previous literatures. According to Jaouahir et al (2015:158), if the campus environment is permissive, it will be the first place for substance experimentation for most of the students. The Wales government in UK recognises that university students are at special risk of substance abuse due to new freedom from adult supervision and new environment stressors (Bennett & Holloway 2014:454).

5.3.4.2 Sub-theme 4.2 Academic competition

The findings of the qualitative strand of this study indicate that the academic competition at the institutional level is an important force that pushes many students towards substance abuse. Some of the participants explained that students start to abuse substances for academic purpose. According to some participants, students abuse substances to stimulate themselves and they think that they can control every subject overnight once they are stimulated with the substances. Some of the statements of the participants are:

> *The students think that they can pass every subject if they abuse substances. They start abusing substances for relaxation or study purpose. However, they start using the substances repeatedly until it becomes an addiction and dependence.* (Participant 12)

> *''Actually, things that promote substance abuse are that the academic competition at university becomes hard compared to the high school. When I ask students why they use the substance, most of them report that they use to stimulate themselves so as they can read the whole night.''* (Participant 4)

The findings of this study regarding the substance abuse for cognitive enhancement are in line with previous studies. Cognitive enhancement in academia was defined by Bostrom and Sanberg cited in Sattler et al (2013:1) as ''the amplification or extension of the core capacities of the mind through improvement or the augmentation of internal information processing system.'' National Institute on Drug Abuse (2014:13) claims that students may abuse stimulants because they think those substances enhance or improve their performance. Maier et al (2013:4) report that Swiss university students abuse neuro-enhancement substances ranging from soft enhancers such as coffee to prescribed drugs. On the other hand, scholars mention that stimulants are counterproductive when it comes to academic performance of students. For example, Trunzo et al (2014:399) argue that cognitive enhancer stimulants including energy drinks are negatively associated with academic performance.

Participant 5 expressed the effect of the education system in other way round. According to him, the current education system in Ethiopian universities is not demanding. This makes students to be too relaxed and playful resulting in spending their time in joy and relaxation that includes substance abuse. The direct quotation from this participant is:

> *The other factor contributing to substance abuse is related to the quality of education. Example, in the university, the policy is that the students should be allowed to progress and remain at school regardless of lack of progress. This makes students perceive this wrongly and they don't work hard as there is no probability of dismissal. They always understand that they have the time and the chance to earn the degree and they become lose and aimless. Whatever grade they score, they will not be dismissed.*

To the best knowledge of the researcher, this is a new concept that was not found in the previous literatures. However, it gives sense that lack of demanding goal on the part of the students may make them lose and waste their time on substance abuse. This however needs further investigation.

5.3.4.3 Sub-theme 4.3 Substance abuse among instructors of the institution

Some of the study participants explain that many of the university's teachers are substance abusers. The students can see their teachers abusing substances as the teachers buy the substances from the same centre where the students buy while some of the teachers sit together with their students to abuse the substances. This encourages many students to continue with substance abuse. Some of the participants expressed like this:

> *There are addict teachers in this university. If the teachers themselves come to class with ruminants of khat in their teeth, it is big problem. If the instructors sit together with students to abuse substances it is very difficult to control substance abuse among students.* (Participant 5)

> *This problem of substance abuse was also seen in teachers. I had one instructor in the university who was seriously affected with substance abuse*

disorder. The teacher came to our clinic seriously affected with the substance abuse to the extent that he became psychosis. We admitted to the clinic's in-patient department. We admitted him by force together with his friends. He became harmful for himself and others. (Participant 1)

The concern that students may adopt substance abuse from their instructors is shared by previous researchers too. For example, in their study on undergraduate students at Hawassa University, Ethiopia, Kassa and Deyno (2014:5) suggest that students may adopt substance abuse from their instructors at their university.

5.3.5 Theme 5: Intervention options at institutional level

Most of the participants provided rich information regarding the intervention options that can be undertaken at institutional level. As a result, the intervention options at institutional level are discussed in the following categories.

5.3.5.1 Sub-theme 5.1: Commitment on the part of the university officials

The involvement of the university officials in the prevention of substance abuse among students is very important. The university officials could meet with the students during holiday ceremonies so that the students could feel that they are not alone. This helps them to easily adapt to the university environment. Some of the participants also recommend that the university officials in the country should share experiences on the prevention and management of the behaviour of substance abuse among university students so that a university could take best practices from the other one. The direct statements from some of the participants are:

University officials in the country have sessions to discuss different issues and they should take substance abuse as one agenda and discuss how to improve the problem of substance abuse. They should share experiences in their sessions and meetings. Doing this is helpful. (Participant 1)

During holidays, the university officials should join and visit the students. They may eat together so as the students could feel that they are being seen as important person by the university officials. Ceremony speeches and visits by the university officials are also helpful. This makes the students feel that they

are with their second parents. This makes them to easily adapt the university environment and reduce the stress and prevent substance abuse as coping mechanism. (Participant 13)

The findings of this study indicate that the commitments to make changes in the university environment on the part of the university officials are currently improving. Some of the participants express that the current officials in the university are ready to make changes and what they need is informed recommendations. The direct statements of the participants are:

I know that the present officials at the university are committed, if they are working this way [being committed to students' life], it is good, if not, they will do it [they will be committed to help the students] if they get this type of recommendation. (Participant 1)

If the researchers recommend this type of options [the need for commitment on the part of the university officials], the university officials will accept this [being committed to help students] and apply accordingly. (Participant 2)

To the contrary, some of the participants claimed that the management of the university is not doing enough in the endeavours of prevention of substance abuse. The direct statements from some of the participants are:

In this university, we do many things on ourselves but the university management does not support us. (Participant 16)

The higher officials should be committed to bring change. Starting the president of the region, they should be committed. The first thing is that they should understand that the problem is grave enough that needs intervention. And then they should be committed to make changes. (Participant 8)

Participant 5 also alluded that:

Each policy which is designed but not implemented is not helpful. So, the context of the university may not be suitable to apply the policy regarding the substance abuse. Is the policy really implemented? Are the responsible

people really committed to implement the policy? These are difficult things to address.

For effective prevention of substance abuse among university students, the importance of the commitment on the side of the university officials was expressed by previous researchers too. For instance, Andes et al (2014:34) emphasise that winning the support of higher officials of a university is an important ingredient of substance abuse prevention strategy in an institution. A national summit on drug control among university students was conducted in Philadelphia, Pennsylvania. The national summit urged universities to translate researches on substance abuse into practice (Andes et al 2014:36).

5.3.5.2 Sub-theme 5.2: Providing healthy recreational options at the university campus

Lack of healthy recreational options in the university campus can push students to the town where they only get houses where substances such as khat and alcohol are served. Providing healthy and affordable recreational options on the campus makes students abstain from substance abuse. Some participants believe that if the students get healthy entertainment options to refresh themselves after several hours of study, they will not consider substances like khat and alcohol for refreshment. Here are the statements from some of the participants:

> *There are no enough refreshment options in the university and students may use substance as refreshment option. When students go out of the campus to refresh themselves, the primary things that they get are khat, or pool house, or bars where alcohol is served. (*Participant *2)*

> *The other factor in this university is that there is no any recreational option. Because students need rest and refreshment after they have gone through harsh academic work from Monday to Friday. Even the pool [a type of sport play] has started just within the past two weeks and that is for the teachers not for students. As a result, students go out of the campus to refresh themselves and what they get in the town is substances like khat and alcohol.* (Participant 16)

This availability of recreational centres in the university has great influence. Example, in Gondar University [one of the public universities in Ethiopia], there are more than two or three cafes with DStv and other recreational areas. If the cafe is only one, the students will not get enough recreational area. The students use the substance post exam period. Khat is for study but alcohol is post exam for recreational purpose. So, if the students have other alternative for recreational activity, they may not abuse alcohol for recreational purpose. I support to provide recreational options. Students will see the khat and other substance houses when they search for recreational opportunities in the town and they will easily be drawn to these houses [houses where addictive substance are served]. So, the recreational areas in the campus are free of addictive substances. (Participant 1)

The need for availing healthy recreational option for university students in the endeavours of prevention of substance abuse is supported by literatures. Terrion (2012:17-18) mentions that university administrators need to make their campuses free of substance abuse so as the campuses become welcoming for students working to maintain their sobriety. Terrion (2012:18) further advises that university administrators should provide substance free university based recreational activities such as movie nights and sports. This view was re-enforced by Mirlashari et al (2012:465) who reported that students who are bored by the university environment tend to use substance aiming at pushing time and having fun.

5.3.5.3 Sub-theme 5.3: Coordinating all parties that work on prevention of substance abuse

Coordinating and networking all parties who work on control of substance abuse among university students could bring all efforts into one pool so as they can work synergistically. Participants suggested that anti-substance abuse efforts by all parties including concerned governmental offices, Non-Governmental Organisations (NGOs), and Faith based organisations should be coordinated and linked. As the students start substance abuse when they are at high school, anti-substance abuse efforts should bud from high schools. Some of the statements of the participants are:

The services to help with prevention of substance abuse are not well coordinated. The health professionals and the counselling professionals do not work co-ordinately. (Participant 8)

''In a university, not only in university; substance abuse is becoming common now in high schools than in universities. Because the students come from the high schools, so, the guidance and counselling should be established as one office from the higher level.'' (Participant 4)

Coordinating different parties that can support the endeavours of prevention of substance abuse is imperative for achieving substance free graduates. In support of this idea, Gil-Lacruz and Gil-Lacruz (2013:340) recommend that anti-drug messages that aim at young students should be delivered not only in schools but also to families in home, hospitals, recreational centres, and work places etc.

5.3.5.4 Sub-theme 5.4: Establishing and strengthening anti-substance abuse clubs

Participants suggested that establishing anti-substance abuse clubs that can be led by the students themselves and strengthening the existing clubs motivates students to contribute towards prevention of substance abuse. According to some of the participants, clubs like ant-HIV/AIDS, environmental club, etc are common in Ethiopian schools starting the high schools but there is not any anti-substance abuse club in the schools. Some of the statements from participants are:

There were many clubs and associations in the university; one is called '74 association', that is the association of addicted students. But now these are not working. Now the associations are not functional. These associations were strong at first; these associations in collaboration with HAPCO have produced a 55 minutes film which educates about substance abuse and related risks, the film is called 'Ramhateli'. But, the associations did not get enough support and follow up from the university and now they are not working enough. (Participant 16)

...in addition to that, it could have been good to have anti-substance use club just like anti-HIV club. The club may work through different programmes. The anti-substance abuse club can help a lot. (Participant 15)

The establishment of clubs helps to involve students in campus based substance abuse prevention activities. Bennett and Holloway (2014:453) mention that the use of extracurricular activities to bring about behaviour changes increase students' activities leading to reduction in the chance of involving with substance abuse.

5.3.5.5 Sub-theme 5.5: Strengthening law enforcement

Almost all participants agreed that the law enforcement regarding substance abuse at the university is very weak. Participants mentioned the absence of a fence at the target University contributes for students to easily enter the campus holding substances. Participants also censure that the presence of substance market centres just few meters away from the gate of the campus undermines the protocol of the university that prohibits sell of substances within five hundred meters radius of the university compound. Some participants alluded the fact that the law enforcement officers of the campus including the university police officers are substance abusers themselves undermining the implementation of the code of conduct of the university regarding substance abuse. Some of the statements of the participants are:

Universities may have rules that prevent the entrance of khat, tobacco and other substances, but the rule is not fully implemented. The rule in every university is not fully implemented. There are scenarios that the university staffs such as the librarian women bring khat in their bags to students. The follow up in university is very weak. When new university is established, the campus will be colonised by substance markets. Many substance dealers start to open substance selling houses around the university. Then, the students will see these substances and try them. (Participant 2)

The code of conduct of the university forbids holding addictive substances within five hundred meters radius of the university. But, is it really applicable? We are looking many things; there are many khat markets within few meters

of the compound. There are class rooms around the campus of the university in which students abuse substance. Even many female students go to these classes and use substance. If you see the police and the guards, who are supposed to control substance abuse in the campus, they hold cigarette in one hand and khat on their second hand. How could they control substance abuse? If I hold two cigarettes for me and give one to him, I can easily cross the check point holding my substances. Because the police officers themselves are addicts and they know what it means not to abuse the substance and they will not have the courage to control substance abuse and holding. So, the university's rule is not strictly applied. (Participant 16)

The other point is who are the controllers? The proctors [dormitory supervisors, in Ethiopian public universities] and the police officers are already substance abusers. When they get students holding substances, they take it from the students and they use it for themselves in front of the students. So, when there is a law, the law enforcing people should first apply it for themselves. (Participant 5)

Though substance control is not strict enough, hashish is under special control in the university. Some of the participants explained that the university doesn't negotiate with students who hold or abuse hashish inside the campus and the punishment is immediate dismissal for ever from the academy. Some of the participants succinctly stated that:

We get about four students per year who abuse hashish and these are from affluent families and we dismiss them from the university. (Participant 12)

I know that four students have been dismissed last year for using hashish as hashish is strictly controlled. Hashish is special case. (Participant 15)

These findings are similar with previous recommendations. Gathuru et al (2015:276) argue that shisha, cigarette, and other substances of abuse sell should be prohibited around university campuses and this calls for empowering university officials to restrict the supply of substances to university students controlling and limiting the delivery by substance dealers (Khan [Sa]:2). In greater Philadelphia, USA, scholars

criticise that the campus police officers lack the legitimacy to investigate the possible involvement of students with illicit substance use (Andes et al 2014:32). Other researchers claim that a wide spread availability of substances around the university campuses should be dealt with to improve the craving tendency of students (Terrion 2012:4).

5.3.5.6 Sub-theme 5.6: Modifying the students' clinic

Given the burden of substance abuse among students, the students' clinic should be modified to include rehabilitation centre that has mental health professionals who have training in substance abuse disorder for students affected by substance abuse disorder. According to the participants, the students' clinic is not doing enough in supporting students who are affected by substance abuse. Participants suggested that the university could make link with hospitals which have mental health professionals so that they can help students as part-timers. Participant 5 stated that:

> *We were not working to help those who are addicted or those with substance abuse disorder. This needs clinical psychologists and psychiatrists. We don't have psychiatrists.*

Participant 9 added that:

> *The university should work in collaboration with the hospital. The university can use professionals of this hospital. The university should create link with the hospital so that the professionals in this hospital can help the students.*

Other participants added that:

> *What we are doing is simply providing awareness on substance abuse; not more than that. There are not enough professionals to help those who develop addiction and substance abuse disorder. There is not a professional who is well trained in the management of substance abuse. This is one of the gaps.* (Participant 7)

> *The service given to students in the campus is not enough. In my opinion, the service that is being provided is not enough. Students have many substance*

induced problems including intoxication, withdrawal syndrome etc and so the service is not enough. (Participant 8)

However, referring students to hospitals for psychological and psychiatric services is not supported by some of the participants. According to these participants, students are not comfortable in using the services in the hospitals as there are long crowds there. Participant 3 expressed that:

The students should get psychological and psychiatric professionals in their clinic instead of sending them to hospitals because the hospitals are not suitable for students. They miss their classes while they come here and this in turn creates additional stress. We encounter students who worry because of their coming to our clinic missing their classes. So, the students should get mental health support in their clinic [students' clinic]. Because, there are professionals who have training in mental health, they should not be treated with only general medical practitioners. Students with mental stress are common in campuses and the students' clinic should have these professionals.

Some participants suggested that the university can use its academic staff with background of mental health profession to help students. According to some of the participants, this will resolve the manpower constraint of the university. The statements of Participant 1 in this regard are:

There are psychiatric and psychology teachers in the campus and the university can use these teachers to help students in their part time as part-timer or as voluntary. If there is shortage of budget, the university may use psychology students in their last year as internship. Now, I know that there are two clinical psychology teachers - a man and a woman and I always tell them to be involved with helping the students. So, during the orientation session, clinical psychologists or mental health professionals should be involved during the orientation period.

According to some participants, the counselling and psycho-education for students who develop addiction take long time and needs skill and commitment on the side of

the counsellor. Participant-1 narrates his experience regarding helping students who develop substance abuse disorder as follows:

> *We give them [the students who develop substance abuse disorder] an appointment at the time when it is suitable for their study and come to us to receive psychotherapy. We tell them that the psychotherapy will benefit them not only for this time but also for their future. The counselling is time taking and it is done through many appointments and counselling sessions.*

Some students may involve in substance abuse due to prior mental illness and professionals who work at students' clinic need to be cautious of students' mental health. Participant-9 suggests that:

> *When the students develop the psychological problems, they try to hide themselves in the substance [abuse substance]. If students start to abuse substance, they should get counselling and treatment on time. It should not be delayed. The health professionals should evaluate the presence of mental illness including substance abuse disorder and refer early to the right professionals for psycho-intervention without unnecessary delay.*

The findings of this study regarding availing well equipped treatment centres so as to deal with substance abuse disorder among affected students were well established in previous studies. For example, Gerra and Somaini (2013:110) recommend that treatment centres should be equipped with sufficient medical supplies and trained health personnel. According to Gerra and Somaini (2013:110), most treatment centres in Asian countries are not appealing to the substance addicted individuals which are compromised due to lack of enough structure and trained personnel. The National Drug Dependence Treatment Centre (NDDTC) of India has developed centres of care which provide pharmacological and psychological treatment to substance dependent individuals (Ray et al 2012:1705).

5.3.6 Theme 6: Factors that determine substance abuse and interventions at society level

Almost all of the participants suggested that the endeavours of prevention of substance abuse among students could not be effective unless supported by the government at national level. Participants mentioned some of their concerns including lack of appropriate policy and guidelines at national level, lack of commitment on the side of the government, and the economic transactions related to some of the substances as hindrance for the prevention of substance abuse among university students. Some of the points emerged from this theme are discussed in the following sub-themes.

5.3.6.1 Sub-theme 6.1: Policy and guidelines at national level

According to some of the participants, the government should take the leading role in developing and implementing a comprehensive national policy and guideline to prevent and manage the consequences of substance abuse. The national guideline should address the roles and responsibilities of different parties including the media. The mass media play an important role in promoting or preventing substance abuse through their activities including advertising substance abuse and airing health education programmes regarding substance abuse. Participants also mentioned that the government should coordinate and lead non-governmental organisations including religious organisations to contribute for the prevention and management of substance abuse. The statements of some of the participants are:

> *The impact of substance abuse is very wide. It needs deep intervention at different levels. The first thing is it needs national policy and guideline. The policy should address the community as a whole not only the students. The religious organisations, the different community members, etc should be addressed by the policies and the guidelines. Example, take the media, there is no any activity or promotion that focuses on the consequences of substance abuse, no media talks about the negative consequences of khat, alcohol, or cigarette; rather they promote these substances. For example, look at the advertisement of 'habesha beer' [a brand of beer in Ethiopia]; now it is a bit edited but previously it says 'workema bira leworkqamawochu' means*

'golden beer for the golden people'. This directly goes with modernity - that is it indicates that those who do not drink that beer are not golden. That indicates that those who do not drink beer are not modern people. So, our movies and media have great influence in driving people to substance abuse. The media are not talking about the consequences of substance abuse but promoting the substance abuse. The government should give enough attention to this issue. It can lead the media towards educating the community. This can help students from the grass root. (Participant-5)

''Tackling with substance abuse should start at the higher level. We should design the law, the policy, and the health care systems in a way that can reduce substance abuse. The government should have an office that controls such types of conditions. The universities may have policies and guidelines but that will not be sufficient.'' (Participant-4)

We need good guidelines that consider the university, the town, the whole partners; we may encounter many problems while we implement our preventive programmes. The culture of substance abuse in this community is deep rooted and it needs high efforts to be done. The higher officials at different sectors and governmental levels should give enough attention. The Somali regional state also should give attention. The problem is very grave. The whole parties should play their role and we need important guidelines that can bring all these efforts to the same goal. (Participant-5)

The findings of this study regarding the importance of the attention of governmental officials at higher level are congruent with previous literatures. The statement of the president of the Republic of South Africa may be taken as exemplary in this regard. Jacob Zuma, the president of South Africa, stated that the fight against substance abuse is key aspect of promoting social cohesion and stable communities in a country (CDA 2013:20). Tackling substance abuse needs to consider not only intrapersonal factors but also structural factors such as employment, crime, and lack of economic opportunities (Sorsdahl et al 2012:6). Sattler et al (2013:7) maintain that the general society, politics, and legislations must collaboratively work to prevent substance abuse in the society including among university students. Sattler et al

(2013:7) recommend policy makers to design policies, regulations and guidelines that can influence the internalised norms within the society.

Some participants mention that the legislations regarding control of substances are not strict enough. Substances like khat are legally restricted in many parts of the world but not in Ethiopia. Moreover, the involvement of the government on the production of substances like tobacco is criticised by the participants. The statements from some of the participants are:

> *''The government also has a tobacco company and may not have the courage to talk about substance abuse. This may lead us to: 'do what I say but not what I do.' I want to start from the policy of the government; Khat, cigarette etc are not legally restricted in Ethiopia. Marijuana and other sedatives are legally prohibited but substances like khat are not legally restricted. So who will take the responsibility? It is already known that substance abuse in Ethiopian university students is high. But there is not any organisation or any office that works on preventing substance abuse.''* (Participant 4)

> *The government is promoting substance abuse; example, the government is collecting revenue from khat, and cigarette, and khat is legal substance in the country. There is poverty; lack of economic growth may enforce the government to collect tax from these substances. So poverty of the country is a problem. The government is selling and promoting alcohol and it is a business.* (Participant 5)

When coming to substance control, the legislations and policies of the government of Ethiopia mainly focus on how and who will be involved in the transaction of substances like tobacco. For example, the government of Ethiopia has passed a proclamation that controls the production, import, export, distribution, and sale of narcotic and psychotropic drugs, and other psychoactive substances like tobacco and Article 18 of the proclamation states that: ''Any person shall, to import, export, manufacture, distribute, store or possess narcotic drugs, psychotropic substances or precursor chemicals, be required to have a special permit issued by the executive organ.'' (Ethiopia 2010:5174). The ban and control of addictive substances is a point of debate among many scientists and policy makers. For example, Kramer (2016:11)

is of the opinion that scientifically assessing the traditional and medical benefits of substances before rushing to global eradication is mandatory. Hallam et al (2014:2) criticises the provisional schedules of drug control by UN for being without prior scientific investigation by the WHO's expert committee on drug dependence, a body composed of specialists in the field.

Some of the participants suggested that the economic transactions involving some of the substances are important factors in promoting substance abuse. Substances like khat and alcohol run great business in Ethiopia and this may create conflict of interest when coming to the development and implementation of policies regarding prevention of substance abuse. Some participants explained that plantation of substances like khat employ a large number of people in the country and generate a considerable amount of revenue to the government through taxation and this may create great hindrance in the commitment of the government in the prevention of substance abuse. The direct statements of some of the participants are:

> *The problem is that most of the substances run great business. Beer and other alcohol production and trade are the main business sectors in this country. The government by itself is involved with production of cigarette. Even the khat provides higher revenue to the government.* (Participant 12)

> *As to me, as these substances are great source of income for the government itself, it is very difficult to prevent their use. The government gains foreign currency from exporting khat. So, it will be difficult to make changes at lower level regarding these substances. It is difficult to work towards totally stopping the use of these substances.* (Participant 8)

Participants also suggest that replacing the substances like khat as livelihood basis of farmers with other crops and developmental schemes can help towards eradication of these substances from the farms leading to supply reduction. The statements of some participants are:

> *Especially the eastern part of the country, the main source of the community [economic source] is khat. So, the initiation should come from the higher governmental bodies not from the lower parts. Because, the government is*

the one who can control the abuse, the production, and the distribution of these substances. The government can find other means of income for those who rely on production and trading khat. So, the intervention should start at the top level. (Participant 8)

Well, regarding addiction, the substances may be sources of income. But when we see it from national benefit, the income from the substances will not suffice to treat the illness caused by the substance abuse. Therefore, the substances should be eradicated from the farm step by step and the farmers should be provided alternative development options. This eradicating the substances is important to reduce the supply so that the students will not have easy access to substances. If the supply is reduced, the price will rise and this will not be affordable for most of students resulting in students not entering into the substance abuse. This will be good practice. The country, producing addictive substances, affecting its citizens with these substances, will not get an income from the substances that can suffice to treat the addiction in its citizens. This is my conclusion but it may need to be studied. (Participant 2)

The idea of replacing economic transactions involving the production and trading of substances of abuse at national level was mentioned in previous literatures. The UNODC (2015:xvii) recommend an alternative development which aims at reducing vulnerability that predisposes to involving in illicit crop cultivation. Such alternative development programmes were suggested to be important in Coca (precursor of cocaine), Opium (the resource of opioids) and cannabis producing countries (UNODC 2015:xviii). According to the UNDP (2015:7), the repressive law enforcements have resulted in human right violence, destruction of the livelihood of poor farmers and other people who depend on selling the drugs, adversely affect the health, security, and development of societies. The UNDP (2015:16) argues that repressive drug control policies encourage people to shift to new drugs with similar potency but less controlled. The UNDP (2015:9) also claims that UN-drug conventions do not require the arrest of people who possess drugs for personal use. The UNDP (2015:33) recommends creating employment opportunities, equitable access to resources, protection against economic and environmental shock, democratic governance, and comprehensive health and HIV interventions are the

best ways to control drug abuse at societal level. The INCB suggests that well developed prevention programmes can significantly reduce substance abuse and its consequences (Yans 2012:2).

5.3.6.2 Sub-theme 6.2: Establishing rehabilitation centres at regional level

Once students develop addiction and other substance abuse disorders, they need to be rehabilitated in centres that are equipped with the necessary equipment, supplies and manpower. Participants of this study suggested that establishing rehabilitation centres at regional level benefits students as they will use services in these centres. The direct statements of two of the participants are:

> *If it is possible, establishing rehabilitation centre in each region is helpful. Example, in Somali region, it is the second wide region [the second large area of the member states of the federal government of Ethiopia] but leave about rehabilitation centre it has no enough wards to support people with problem of substance use disorder. People who are rehabilitated can be used to teach others and this reduces substance abuse at national level.* (Participant 2)

> *Not only in the target University but in most Ethiopian universities, if there is a work at all, the work is to prevent substance abuse but they [those who work for the prevention of substance abuse] don't work in treating addicted students. It is very rare to find a university which works in stabilising students who are addicted. So there is not any plan, policy, or guideline that can be used to intervene on students who develop substance abuse disorder. This needs very sophisticated work; it needs guidelines, manuals and training of staff on management of substance abuse disorder and it is not available in our country. It needs more than face to face discussion with the cases.* (Participant 5)

The findings of this study regarding the need to rehabilitate students who develop substance abuse disorder go with the contemporary international drug control philosophy. The current substance control policy approach mostly focuses on the idea that addiction is a disease and the crimes committed by substance offenders are symptoms of this disease (Lofgren 2011:775; United States Department of State:

Bureau for International Narcotics and Law Enforcement Affairs 2015:11). Several states of USA are considering treating instead of incarcerating substance abusers (Lofgren 2011:775). The government of Indonesia has passed a new law that emphasises on social rehabilitation over prosecution of people with substance abuse disorder (Putri & Blickman 2016:13). Generally, the advocating that new approaches which consider substance abuse as a health problem rather than crime are pushing the principle of substance control policies towards treatment focused approach (Lofgren 2011:781-782; CDA 2013:48; United States Department of State: Bureau for International Narcotics and Law Enforcement Affairs 2015:11, 22).

5.4 CONCLUSION

This chapter presented the findings and interpretations of the qualitative part of the study. The chapter presented demographic data of respondents, then the finding of the qualitative part of the study under certain themes, sub-themes, and categories. The sections of different headings and sub-headings of the chapter presented the themes, sub-themes and categories. Almost all of the emerged themes are in congruent with the Social Ecological Model.

CHAPTER 6

SUMMARY AND CONCLUSION OF THE QUANTITATIVE AND QUALITATIVE RESEARCH FINDINGS

6.1 INTRODUCTION

The previous chapter has presented the discussion and interpretation of the qualitative data. This chapter intends to present the summary of the pertinent findings from both quantitative and qualitative strands of the study. The chapter presents concluding remarks made based on the findings while highlighting the important action points under each finding. However, the main guideline that aims at prevention and management of substance abuse among university students will broadly be discussed in the next chapter. This chapter also presents the main contributions of the study to the field of public health, especially the problem of substance abuse, and to the future researches. The chapter ends with highlighting the limitations of the study.

6.2 SUMMARY OF RESEARCH FINDINGS

This section presents the summary of the pertinent findings from both the quantitative and qualitative strands of the study. The specific tables or themes of the findings are indicated for making evidence to be easily located.

6.2.1 Demographic characteristics of study subjects

The respondents of the quantitative strand of the study were in the age range of 18 to 25 years. Majority of them were male students. The majority of the respondents were Orthodox Christian followers followed by Muslims. Given that the target University is found in east Ethiopia, the majority of the students originated from east Ethiopia (see tables 4.1, 4.2 and 4.4). The participants of the qualitative part of the study were purposefully selected from the university officials, students' representatives, clinicians who work at the students' clinic, psychiatric nurses who work at the target Hospital where students are referred to for further medical and mental health evaluations. . Most of the participants have training in mental health or psychic (psychiatry and psychology). All of the participants were included in the

study because of being knowledgeable in the students' behaviour regarding substance abuse.

6.2.2 Findings pertinent to the intrapersonal level in relation to substance abuse

Both the quantitative and qualitative parts of the study came up with several findings worth consideration. The main findings indicate that most of the students are naive to the hard substances such as heroin and cocaine but the prevalence of abusing substances such as tobacco, alcohol, and khat is rampant among the students (see tables 4.6, 4.7, 4.8, 4.9 and section 5.3.1). Of those who are involved with substance abuse, majority of them started substance use at the ages of 18 to 25 (see table 4.14 and section 5.3.2.2) signifying that students start substance use when they join the university.

The prevalence of substance abuse among male students is higher compared to female students (see tables 4.19, 4.20, and 4.21). However, there was no statistically significant difference between men and women regarding alcohol drinking.

It was striking that the perception that substance abuse could harm to human health among individuals was not associated with cigarette smoking and khat chewing but slightly associated with alcohol drinking (see tables 4.22, 4.23, 4.25). It is the stand of the researcher that this finding is associated with the fact that khat and cigarette are culturally rooted among the communities of the region where the university is found (see section 5.3.4.1).

The qualitative part of this study revealed that substance abuse is determined by personal commitment on the part of the students (see section 5.3.2.1). This is in congruent with the quantitative strand of the study which indicates that majority of respondents believe that substance abuse could harm health, cause addiction and lead to involvement of risky behaviours that students could avoid if they do not abuse substance (see table 4.18).

6.2.3 Findings pertinent at interpersonal level in relation to substance abuse

Both the quantitative and qualitative parts of this study show that substance abuse among students is highly related to what their family members, peers or relatives are doing in relation to substance abuse. The quantitative part of the study indicates that there is strong relationship between substance abuse among students and substance abuse among their fathers (see tables 4.25, 4.26, and 4.27). Consistent to these findings, the qualitative part of the study also indicates that substance abuse among family members is strong predictor of substance abuse among students (see 5.3.3.1).

The findings of the quantitative part of the study also show that substance abuse among friends of students is strongly associated with substance abuse among the students (see tables 4.28, 4.29, and 4.30). This was also supported by the findings of the qualitative part of the study (see section 5.3.3.2).

6.2.4 Findings pertinent to the community level in relation to substance abuse

Growing in urban or rural area did not show significant association with the cigarette smoking and alcohol drinking but with khat chewing among the students (see tables 4.31, 4.32, and 4.33). However, both the quantitative and the qualitative part of the study show strong association between students' region of origin and khat and alcohol abuse (sees tables 4.34, 4.35, and 4.36, and section 5.3.4.1). As khat chewing is common for students originated from the eastern Ethiopia, alcohol drinking is common for students who are from northern Ethiopia. These findings go with the culturally rooted behaviours of alcohol drinking among the communities in the northern Ethiopia, and khat and cigarette abuse among the communities in eastern Ethiopia.

The open-ended questions distributed to respondent students also revealed that the plenty availability and ease of access to addictive substances at the university promote substance abuse among students. Table 4.44 indicates that most substances such as cigarette, khat, and alcohol are easily accessible to students at the target University as they are sold at the gate of the university's campus.

Both the quantitative and qualitative strands of this study congruently indicate that the religious affiliation of students has strong association with alcohol and khat abuse but not with cigarette smoking (see tables 4.37, 4.38, and 4.39, and section 5.3.4.2). These findings are in line with the khat chewing among Muslim religious leaders for prayers and the alcohol drinking among Orthodox Christian religious during celebrations of certain events in the community where the students originated.

6.2.5 Findings pertinent to the institutional level in relation to substance abuse

Academic competition and stresses related to the academic activities are the major factors that determine substance abuse among students at institutional level. Most of khat chewer students mentioned that they chew it to help them study hard (see table 4.15). Respondent students also mentioned academic pressure as the main reason for students to engage in substance abuse (see table 4.44). This was also supported in the qualitative part of the study. The findings of the qualitative part of the study revealed that most students chew khat for neuro-enhancement and studying for longer time (see section 5.3.5.2). However, consistent to the previous studies, the quantitative part of this study does not show that substance abuse improves students' academic performance (see tables 4.40, 4.41, and 4.42). This calls for programmes aimed at developing strategies that help students to study without using stimulants. Such strategies may include development of skills of critical reading and time management.

The findings from the open-ended questions responded by sample students revealed that a considerable number of students have never heard about policies/regulations of the university regarding substance abuse. Moreover, a considerable number of respondents recommend that strict law enforcement is mandatory to make the institution free of substance grimy (see tables 4.43 and 4.46). These findings are supported by the qualitative part of the study. Most participants of the study explained that the application of the code of conduct of the institution regarding substance abuse is not strict enough to protect students from substance abuse. The participants of the qualitative part of the study emphasise that lack of control of substance sale around the university, lack of strict control on entrance of substance to the institution are great challenges for prevention of substance abuse at the institution (see section 5.3.5.4.5).

The qualitative part of this study revealed that substance abuse among instructors of the university is common and this can encourage the students to mimic substance abuse from their instructors. The aggravating factor for adopting substance abuse from the instructors is that both the instructors and the students use the same market centre for buying the substances. Moreover, it is mentioned that some instructors sit with their students for substance abuse (see section 5.3.5.3).

6.2.5.1 Findings pertinent to intervention options at the institutional level

Both the quantitative and qualitative strands of the study suggested certain intervention options that are important mainly at institutional level. Even though provision of systematic health education on consequences of substance abuse may help students to abstain from substance abuse, the quantitative strand of the study revealed that students continue to abuse addictive substances despite they recognise the risks (see tables 4.18, 4.24 and 4.46). Thus, more skill training on study habits without using stimulants is needed. In this regard, the qualitative part of the study revealed that establishing anti-substance abuse clubs can create the active involvement of students in educating their peers regarding consequences of substance abuse (see sections 5.3.5.4.3 and 5.3.5.4.4).

The quantitative and qualitative strands of the study also congruently recommend the designing and implementation of rules to control substance abuse in the university's compound. It was also established that access to substances such as khat and cigarette is very easy in the university (see table 4.16). The study results suggest that controlling market centres that provide plenty of substances at the gate of the university's campus is an important step towards prevention of substance abuse among university students. While the qualitative part of the study revealed that the implementation of the code of conduct regarding substance control is too lose making students easily engage in substance abuse, the findings of quantitative part of the study also suggest that strict control of substance abuse in the compound of the university is mandatory (see table 4.46 and section 5.3.5.4.5).

It is vividly mentioned in this study that provision of healthy recreation options helps students to refresh themselves in a healthy manner rather than abusing substances for refreshment that can end up leading them to be enmeshed in substance abuse

forever. Both the quantitative and qualitative parts of this study revealed that the university does not have any recreational option for students and this leaves only substance abuse as refreshment option for the students (see table 4.46 and section 5.3.5.4.2).

It is mentioned several times in the qualitative part of the study that the University officials should maintain commitment for control of substance abuse among students. It is the stand of the researcher that the implementation of the code of conduct of the university regarding substance abuse, control of market centres that sell substances around the university, control of substance abuse among the university's instructors, and provision of healthy entertainment options to the students can only be practically applied if the university officials are committed enough in this regard.

The qualitative strand of the study also revealed that coordinating all parties that are supposed to work in the prevention of substance abuse is an important ingredient of the endeavours of substance control at the institution. It was mentioned that coordination among all actors including: the university offices that are directly linked to students' services such as students' clinic, the office of the students' dean, the office of students' union, HAPCO, and the university's gender office should be coordinated to synergistically work to words reducing substance abuse among students. The findings of the qualitative part of the study also revealed that the university should coordinate other bodies such as religious leaders, representatives of NGOs, and other governmental offices so as they will contributes to the prevention of substance abuse among students (see section 5.3.5.4.3).

The findings from the qualitative strand of the study suggest that it is important to modify the students' clinic in such a way that it can support students who already develop substance abuse disorder. The participants of the study mentioned that the students' clinic should be equipped with appropriate manpower that has important training on counselling and management of cases of substance abuse disorder. It is mentioned that inviting professionals from nearby hospitals and involving academic staff who have training in mental health is helpful (see section 5.3.5.4.6).

6.2.6 Findings pertinent to the societal level in relation to substance abuse

The quantitative strand of the study shows that the majority of students do not know any national policy/rule or regulation regarding substance control (see table 4.45). The qualitative part of the study revealed that the work done regarding substance control by the government at national level is not enough. The findings show that there are no enough policy/rules and regulations to control substance abuse among the Ethiopian youths including university students.

The qualitative part of the study also suggested that policies for replacing economic transaction involving the production, transportation, and trading of major addictive substances such as khat, tobacco, and alcohol with other development plans at national level are important remedies for effective substance control. Participants of the qualitative part of the study also suggested that shifting people's livelihood activities that depend on the production and trading of these substances with other development schemes is expected at national level.

6.3 CONCLUDING REMARKS AND RECOMMENDATIONS BASED ON THE KEY FINDINGS

This section is reserved for presenting the main findings in line with the research objectives. It points out the conclusions drawn from both quantitative and qualitative parts of the study. Thus the main findings are:

- The population of undergraduate students at the target University is male dominated and the study results revealed that substance abuse among male students is much higher than among female students. Thus, the university should give due emphasis to the prevention of substance abuse among its students.

- Most of the undergraduate students at the target University originate from eastern Ethiopia and are affiliated to Muslim religion. Substance abuse, especially khat chewing and cigarette smoking is deeply rooted in the communities in this region. Thus, all parties who aim at reducing substance abuse among the university students need to pay attention to the cultural background of the students.

- Students who originate from north Ethiopia and are Orthodox Christian followers are the next large in number at the university. These students are mostly involved with alcohol drinking which may be attributed to the fact that alcohol drinking is deeply rooted in the communities in north Ethiopia. Thus, interventions that aim at reducing alcohol drinking in the university should give attention to this background of the students.
- Though the prevalence of abusing hard substances such as heroin and cocaine is near zero at the university, the prevalence of abusing substances like tobacco, khat, and alcohol is considerably high. From these findings, one can conclude that maintaining the current near zero prevalence of hard substance abuse and working towards reducing the abuse of tobacco, alcohol, and khat is important.
- Though most students are aware that substance abuse could harm human health, this awareness was not reflected in their abuse of substances. This calls for intervention strategies that go beyond awareness raising among the students.
- The findings of the study established that substance abuse among students is strongly related to substance abuse among people close to them including family members, peers, and relatives. This calls for considering the influence of the social network in substance abuse among students.
- It is established in this research that substances such as khat, cigarette, and alcohol are easily found within few minutes of walk from the university campus resulting in increase in the students' substance craving behaviour. Thus, any legal considerations in relation to substance abuse among students at the university should deal with the market centres.
- The study results show that students abuse substances for neuro-enhancement. This is especially pertinent to khat chewing among students. Thus, the misconception that substances such as khat could enhance mental capability should be corrected through appropriate health education.
- Though the majority of students are aware that the university's code of conduct prohibits holding and abusing substances, a considerable number of students do not know the presence of such regulation in the university. Therefore, the university officials need to make extra efforts to inform students on the code of conduct of the university.

- It was found also that the implementation of the code of conduct of the university is very loose making students easily access, hold, and abuse substances on the campus. This requires working towards strict control and supervision of the implementation of the rules of the university regarding substance abuse.
- The study found that a large number of instructors of the university abuse substances buying from the same market where the students buy and some of the instructors sit with students to abuse substances. This could make the university students easily adopt substance abuse from their instructors. Therefore, strategies that aim at reducing substance abuse among students should also consider the university's instructors.
- The study's findings suggest that health education regarding substance abuse should seek the active involvement of the students through establishing anti-substance clubs and students' associations. Thus, the university officials should strengthen and support the existing students' associations such as students' union while encouraging them to be involved in the prevention of substance abuse among students. It is imperative also to establish different students' associations including anti-substance abuse clubs.
- The findings of the study also established that there are no other healthy recreational options for students in the university, leaving the students substance abuse as the only option for refreshment. This calls for establishing healthy and affordable recreational options for students at the university campus.
- The results of this study revealed that the efforts on prevention of substance abuse among students are neither enough nor coordinated. Therefore, coordinating and harmonising all efforts by all parts that are aimed at reducing substance abuse among students is mandatory to gain synergistic results.
- The results of the study indicate that development of substance abuse disorders among students in the university is common and the students' clinic is not equipped with the necessary manpower to deal with such cases. This requires modifying the students' clinic so that students who are affected by substance abuse disorder can get the right treatment and support.
- From the study results, one can conclude that the majority of the students are unaware of the country's law regarding substance abuse. Besides to the harms to their health, this may predispose students to incarceration in relation to

substance abuse. Thus, educating the youth including university students at national level the law of the land regarding substance abuse in mandatory.

- The findings of the study also revealed that Ethiopia doesn't have strong policy regarding the abuse of substances such as tobacco, khat, and alcohol. This leaves a loophole in the society in general making the youth including university students easily enmeshed in substance abuse. Thus, the country should take enough steps towards designing policies at national level.
- The study found that economic transactions that involve substances such as tobacco, khat, and alcohol at national level contribute a large amount. This calls for the government to design an economic policy that can replace the economic and livelihood activities that are dependent on these substances.

6.4 SUMMARY OF THE RESULTS

The following is a summary of the results in relation to the objectives of the study:

Objective 1: Identify the prevalence of substance abuse among undergraduate students at one of the universities in Ethiopia. Results indicate that the abuse of substances such as alcohol, khat and tobacco is high while the prevalence of the abuse of hard substances such as cocaine and heroin is relatively low.

Objective 2: Explore the relationship between substance abuse and some of the components of Social Ecological Model. Results indicate that substance abuse among undergraduate students is strongly related to intrapersonal factors such as risk perception, interpersonal factors such as substance abuse among family members and peer groups, factors at community level such as area and region of growth, and religious affiliation.

Objective 3: Determine and describe the views of students' service providers and administrative officers at one of the universities in Ethiopia on substance abuse among undergraduate students at one of the universities in Ethiopia. Results indicate that students' service providers and administrative officers of the target university view that substance abuse among undergraduate students in Ethiopia is rampant and needs an immediate intervention.

Objective 4: Determine and describe the views of students' service providers and administrative officers at one of the universities in Ethiopia on determinant factors of substance abuse among undergraduate students at one of the universities in Ethiopia. Results indicate that students' service providers and administrative officers of the target university view that intrapersonal factors such as personal commitment, interpersonal factors such as substance abuse among family members and peer groups, institutional factors such as university environment and regulations, factors at community level such as the prevalence of substance abuse at the community where the students originate, factors at the societal level such as poverty and substance control rules determine substance abuse among undergraduate students in Ethiopia.

Objective 5: Explore and describe the views of students' service providers and administrative officers at one of the universities in Ethiopia on how to reduce the burden of substance abuse among undergraduate students at one of the universities in Ethiopia. Students' service providers and administrative officers at the target university suggested different intervention options at intrapersonal, interpersonal, institution, community and society levels (See chapter 5 and chapter 7).

Objective 6: Develop guidelines for mitigating the burden of substance abuse among undergraduate students. Guidelines were developed based on the findings of the research, thorough critical review of the existing literature, and inputs from experts in the field of control of substance abuse, the students' health providers, and the students' representative at the target university (See chapter 7 and annexure O).

6.5 CONCLUSION

This chapter has dealt with the summary and conclusions of the research. The pertinent findings from both the quantitative and qualitative parts of the study were briefly discussed under different headings of the chapter. The conclusion part of the chapter has pointed out the main findings.

CHAPTER 7

GUIDELINES FOR MITIGATING THE BURDEN OF SUBSTANCE ABUSE AMONG UNDERGRADUATE UNIVERSITY STUDENTS IN ETHIOPIA, SIGNIFICANCE AND LIMITATIONS OF THE STUDY

7.1 INTRODUCTION

The previous chapter provided the summary of the research findings and conclusions of the study. This chapter provides a brief description of the guidelines developed based on the research findings and review of the existing literature. The detail description of the guidelines will be presented in annexure O. The development of the guidelines that can be used for mitigating the burden of substance abuse among young university students was the purpose of the study. While the guidelines may be implemented for prevention, control and management of substance abuse in any parts of the society, it mainly focuses on regular undergraduate university students in Ethiopia.

The chapter presents the process of developing the guidelines and the integration of the research findings with the theoretical framework that led to the development of the guidelines in a table. The detailed descriptions of the content of the guidelines are then discussed under subsequent headings.

7.2 STRUCTURE OF THE GUIDELINES FOR MITIGATING THE BURDEN OF SUBSTANCE ABUSE AMONG YOUNG UNIVERSITY STUDENTS

Table 7.1 presents the structure of the guidelines for mitigating the burden of substance abuse among young university students. The structure is composed of the components of Social Ecological Model in relation to substance abuse, the findings from situational analysis (both the qualitative and quantitative strands of the research) and recommended intervention.

Table 7.1 Structure of the guidelines for mitigating the burden of substance abuse among young university students

Components of Social Ecological Model in relation to substance abuse	The research findings	Recommended intervention
1-Determinants of substance abuse at intrapersonal level	**1.1. Demographic characteristics of students:** 1. The undergraduate university students are young people in the age of 18 to 25 years that makes them vulnerable to substance abuse (Section 4.3.1 and Sub-theme 2.2). 2. Most of the students at the university are males and males are the most affected ones by substance abuse (Table 4.1 and Tables 4.19, 4.20, and 4.21).	1. Develop youth friendly intervention programmes. 2. Develop gender sensitive intervention programmes.
	1.2. Students' perception towards substance abuse 1. Most students perceive that they can drive happiness from substance abuse (Table 4.18). 2. Most students perceive that they can get relaxed by using substances (Table 4.18). 3. Most students perceive that they can forget their problems by abusing substances and many students abuse substances to cope with stressful situations (Table 4.18 and sub-theme 5.1). 4. Students perceive that substance abuse can harm their health but their	1. Educate students that the long term consequences of substance abuse outweigh driving short term happiness from substance abuse. 2. Educate students on healthy options of relaxation. 3. Provide life skill trainings on how to cope with stressful situations. 4. Provide students with re-enforcing

	behaviour of substance abuse is incongruent with this perception (Tables 4.18, 4.22 and 4.24). **5.** Students' commitment is necessary to remain free of substance abuse (Sub-theme 2.1).	supports such as skill on how to avoid substance abuse to change their positive perception into healthy behaviour. 5. Educate students that commitment on their side is necessary to remain free of substance abuse.
2-Determinants of substance abuse at interpersonal level	**2.1-The influence of substance abuse among family members on students' substance abuse** 1-Substance abuse among students' fathers has strong positive association with substance abuse among students (tables 4.25, 4.26, and 4.27 and sub-theme 3.1)	1-Engage family members (especially fathers) in the endeavours of prevention and control of substance abuse among students.
	2.2-The influence of substance abuse among peers on students' substance abuse 1-Substance abuse among students' peers has strong positive association with substance abuse among students (Tables 4.28, 4.29, and 4.30 and sub-theme 3.2).	1-Reduce the impact of peer pressure through health education and prevalence reduction.
3-Determinants of substance abuse at institutional level	**3.1-Prevalence of substance abuse among university students** 1. Most of the university students are naive to the hard substances such as heroin, and cocaine (Table 4.6). 2. The prevalence of abuse of substances such as cigarette, alcohol, khat, and shisha is high among the university students (Tables 4.7, 4.8, 4.9, 4.10 and theme 1).	1. Maintain the current low prevalence of the abuse of hard substances through health education and legal restrictions. 2. Give special attention to the consequences of the abuse of alcohol, cigarette, shisha, and khat in the endeavours of prevention and

	3. Most students start to abuse substance at the age of 17 to 20 years, which is the age of entrance to the university (table 4.14 and theme 1).	management of substance abuse among students. 3. Focus prevention and control efforts starting the first year students.
	3.2. Academic work as factor of substance abuse 1. Most students cited academic work as a reason for khat chewing (Table 4.15 and sub-Theme 5.2). 2. The academic performance of students show no association with their behaviour of substance abuse (tables 4.40, 4.41, and 4.42 and sub-theme 5.2).	1. Educate students that studies indicate that substance abuse is counterproductive for academic work. 2. Educate students that substance abuse doesn't improve students' academic performance. 3. Train students on studying strategies (time management, reading skills) without using stimulants.
	3.3. Legislations related to substance abuse 1. Substances such as alcohol, cigarette, shisha, and khat are easy to access to students making them more vulnerable to substance abuse eliciting craving (Tables 4.16, 4.44, 4.46 and Category 5.4.5). 2. The law enforcement regarding substance abuse is weak (Tables 4.44, 4.46 and Category 5.4.5). 3. A substantial number of students do not know about the policy of the university with regard to substance abuse (Table 4.43 and Category 5.4.5). 4. Students can adapt the behaviour of substance abuse from their instructors	1. Develop and implement legislations regarding sell of substance around the university compound. 2. Develop and follow the implementation code of conduct of the university regarding substance abuse. 3. Create awareness on the policies of the university with regard to substance abuse. 4. Develop legislation on substance abuse

	(Sub-theme 5.3). 5. Substance abuse by the university workers at the university compound promotes substance abuse among students (Category 5.4.5).	among instructors of the institution. 5. Develop and implement code of conduct that governs the university workers and people who visit the university with regard to substance abuse.
	3.4. Commitments on the side of the university officials 1. Sharing the challenges of the students by the university officials reduces stresses on students assisting them to remain substance free (Sub-theme 5.4.1). 2. Coordinating all bodies that work on youth health and substance abuse helps in resource mobilisation (Category 5.3.3). 3. Establishing anti-substance abuse clubs encourages students to participate in the endeavours of prevention of substance abuse (Categories 5.4.1 and 5.4.4).	1. Design strategies that could make the bureaucracy of the university easy to students. 2. Coordinate all bodies that work towards reducing the burden of poor health including substance abuse among youths. 3. Establish and support anti-substance abuse clubs in the university campus.
	3.5. Modify the students' clinic 1. The students' clinic at the target University lacks the necessary staff to help students with psychological and mental problems (Category 5.4.6). 2. The students' clinic lacks the necessary infrastructure and medicines for helping students with substance induced disorders (Category 5.4.6).	1. Include mental health service to the students' clinic. 2. Modify the students' clinic to accommodate counselling rooms and chemotherapy.

7.3 SCOPE OF THE GUIDELINES

Though the guidelines were meant to be adapted to all universities and regions in Ethiopia, the fact that the study area was confided to single public university in one region may limit the applicability of all or parts of the guidelines in all universities and regions of Ethiopia. However, it is the stance of the researcher that the guidelines are applicable in most of the universities and regions in Ethiopia with certain modification to fit into the local scenarios.

7.4 IMPLEMENTATION STRATEGY

The Food, Medicine and Health care Administration and Control Authority is responsible for developing, implementation, monitoring, and evaluation of programmes on control of substances in Ethiopia. Therefore, the researcher will communicate with this organisation regarding the adoption and implementation of the guidelines at national and institutional levels. The researcher will also inquire for the dissemination of the guidelines to be incorporated into the strategies of prevention of substance abuse in the universities in Ethiopia. One copy of the final thesis will also be provided to the target University for the adoption of the guidelines in the university.

The implementation of these guidelines will be guided by the Social Ecological Model. As discussed earlier, this model indicates that individuals' behaviours (including substance abuse) are affected by multiple factors including intrapersonal factors, interpersonal factors, organisational or institutional factors, community factors, and societal factors at macro-level (Winch 2012:6, 9). Therefore, the implementation of these guidelines will not be confined only to the university compound as only university targeted actions will not make significant changes in substance use among university students.

The thorough critical literature review made in this study, the findings of this study, and the experts' view evidently show that mitigating the burden of substance abuse among university students calls for an interventions at national, community, institutional, and individual levels. Therefore, the Social Ecological Model was adopted to develop and guide the implementation of the guidelines.

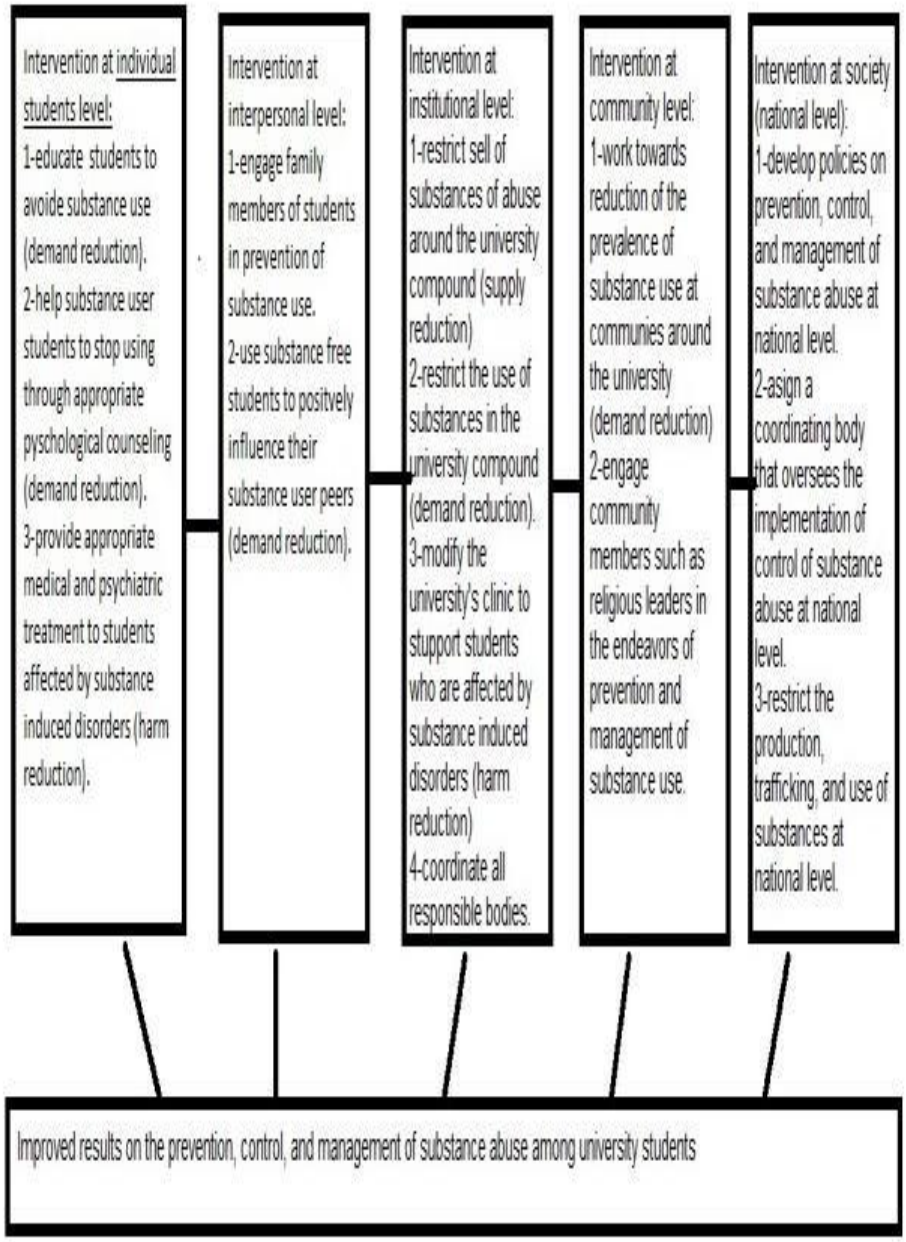

Figure 7.1: A model for implementation of the guidelines to mitigate the burden of substance abuse among university students

7.5 DISSEMINATION OF THE GUIDELINES

The guidelines will be disseminated to FMHACA, the university administrative officers, the students' clinic health providers, and the mental health providers at the hospitals where students are referred to. Conferences will be held to brief the aforementioned bodies on the essences of the guidelines. Then, hard copies of the guidelines will be provided to the aforementioned offices.

7.6 CONTRIBUTIONS OF THE STUDY

The study will have the following contributions for policy making, the public health profession, institutions of higher education, students, and the body of knowledge.

Contribution into policy making: The guidelines developed based on this study suggest intervention options that can be considered by policy makers while designing policies on substance abuse among undergraduate students. Besides investigating their behaviour, studying substance abuse among university students provides important clues regarding substance abuse among the youth in the country which in turn helps to elicit the problem in the minds of the policy makers.

Contribution into the public health profession: The guidelines developed based on this study suggest intervention options that can be considered by public health professionals while designing intervention options on substance abuse among undergraduate students.

Contributions into institutions of higher education: This research informs the university managers and other concerned stakeholders on the trends of substance abuse among undergraduate students at the target university. The research also suggests guidelines to mitigate the behaviour as well as the consequences of substance abuse among the university students. This helps for health programme design and implementation in universities.

Contribution into students: The prospective students of the target University will benefit following the interventions that may be initiated based on this study.

Contribution into the body of knowledge: The findings of this study support the previously developed Social Ecological Model. Finally, the study reveals the trends and associated factors of substance abuse among undergraduate students at the target University that can be used as baseline information for future studies.

7.7 LIMITATIONS OF THE STUDY

- The study was conducted only at one purposefully selected university in Ethiopia. Since prevalence and nature of substance abuse among university students in Ethiopia may vary depending on the environments where the universities are found, the current study may not be generalised to all universities in Ethiopia.
- With the exception of two of the interviews, all the interviews were conducted in Amharic, Ethiopian local language, and transcribed thematically. The final transcript was then a translation from Amharic to English. Though two bilingual translators were used to avoid misinterpretations, the essence of some points may be misinterpreted during the translation.
- Though the general response rate for the quantitative part of the study is 93.33%, out of the total sample size of 420 for the quantitative part of the study, only 296, 238, 173, and 283 respondents have responded to the last open ended questions making the response rate to these questions 70.5%, 55.67%, 41.20%, and 67.40% respectively. However, the rich information from the open ended questions was useful for triangulation with the findings from the qualitative part of the study.

7.8 RECOMMENDATIONS

This section presents the general recommendations for mitigating the burden of substance abuse among university students and recommendations for further study.

7.8.1 Recommendations for mitigating the burden of substance abuse among university students

The following recommendations may mitigate the burden of substance abuse among university students. These are the highlights of the recommendations that are presented in detail in annexure O, the guidelines for mitigating the burden of substance abuse among university students. The following interventions are recommended to be important to combat substance abuse among university students.

- Interventions at individual level that target individual students' factors that contribute to substance abuse among students.
- Interventions at interpersonal level that target relationship factors that influence substance abuse among university students.
- Interventions at institutional level that target the attributes of institutions related to substance abuse among university students.
- Interventions at community level that target attributes of community related to substance abuse among university students.
- Interventions at societal level that target the attributes at national level related to substance abuse among university students.

7.8.2 Recommendations for further research

The following research are recommended:

- Since this research was conducted only at one university, similar studies at different universities are recommended for the guidelines to be generalised to all parts of the country.
- Since this research was conducted only on regular university students, similar studies should be conducted to explore substance abuse among university students who are not regular learners.
- Since this research is observational, experimental research are recommended to identifying effective intervention options for mitigating the burden of substance abuse among university students.

7.9 CONCLUSION

This chapter elaborated the guidelines for prevention, control, and management of substance abuse among university students. The chapter presented the processes of developing the guidelines, the summary of the integration of the research findings with the conceptual framework. The contribution and the limitations of the study were also described in this chapter.

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ANNEXURE A: CERTIFICATE OF CLEARANCE FROM THE UNIVERSITY OF SOUTH AFRICA,

HEALTH STUDIES HIGHER DEGREES COMMITTEE

UNISA university of south africa

UNIVERSITY OF SOUTH AFRICA
Health Studies Higher Degrees Committee
College of Human Sciences
ETHICAL CLEARANCE CERTIFICATE

REC-012714-039

HSHDC/444/2015

Date: 25 November 2015 Student No: 4652-970-5

Project Title: Substance abuse among undergraduate students at a university in Ethiopia

Researcher: Teka Tesfay Asgedom

Degree: D Litt et Phil Code: DPCHS04

Supervisor: Prof AH Mavhandu-Mudzusi
Qualification: D Litt et Phil
Joint Supervisor: Prof JH Roos

DECISION OF COMMITTEE

Approved [√] **Conditionally Approved** [ ]

Prof L Roets
CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE

Prof MM Moleki
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES

ANNEXURE B: LETTER OF SUPPORT FROM UNISA, ETHIOPIA LEARNING CENTRE TO THE TARGET UNIVERSITY FOR COOPERATION IN ACCESSING DATA SOURCES

UNISA university of south africa

04 MARCH, 2016

UNISA-ET/KA/ST/29/04-03-16

JIGJIGA UNIVERSITY

JIGJIGA

Dears Madam/Sir,

The University of South Africa (UNISA) extends warm greetings. By this letter, we want to certify that Mr. Teka Tesfay Asgedom (student number 46529705) is a PhD student in the department of Health Studies at the University of South Africa (UNISA). Currently, he is at the stage of data collection on his doctoral thesis entitled ***"Substance abuse among undergraduate students at a university in Ethiopia."***

This is therefore to kindly request your cooperation in providing the student access to data sources from your university. We would like to thank you in advance for all the assistance that you would provide to the student.

UNISA REGIONAL LEARNING CENTRE
PO BOX 13836 ADDIS ABABA ETHIOPIA
TEL
FAX +251-114-361243
MOBILE +251-912-191483

Sincerely,

Tsige GebreMeskel Aberra

Deputy Director – Academic and ICT Support

UNISA – ETHIOPIA Centre for Graduate Studies

University of South Africa
Regional Learning Center
P.O. Box: 13836, Addis Ababa, Ethiopia
Telephone: +251 11 435 2244 / +251 11 435 0078
Facsimile: +251 11 435 1242/ 43/ 44
Mobile: +251 912 19 1483
www.unisa.ac.za

ANNEXURE C: LETTER OF PERMISSION FROM THE TARGET UNIVERSITY, OFFICE OF ACADEMIC AND RESEARCH VICE PRESIDENT TO ACCESS DATA SOURCES

የአካዳሚክና ምርምር ም/ፕሬዝዳንት ጽ/ቤት

JIGJIGA UNIVERSITY
Academic and Research V/President Office

እርስዎ ቁጥር: Your Ref: _____
የኛ ቁጥር: Our Ref. JJU/ARVP/0921/08
ቀን: Date: 28/08/2008

To:- Whom it may Concern

Dears madam/sir

Mr.Teka Tesfay is conducting a PhD dissertation entitled 'substance abuse among undergraduate students at a university in Ethiopia'.Therefore, we kindly request for your cooperation in providing him access to data sources.

With best regards,

Seid Mohammed Ali
ARVP

Jigjiga University Vice President for Academic & Research Bureau

☎: +251 025 7755853/5936 Fax: +251 0257755947/5976 - 0257752772 P.O.Box 1020 Jigjiga Ethiopia, http/www.jju.edu..et/
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In replaying please quote our Ref.

ANNEXURE D: LETTER OF SUPPORT FROM UNISA, ETHIOPIA LEARNING CENTRE TO THE TARGET HOSPITAL FOR COOPERATION IN ACCESSING DATA SOURCES

UNISA university of south africa

04 MARCH, 2016

UNISA-ET/KA/ST/29/04-03-16

KARAMARA HOSPITAL

JIGJIGA

Dears Madam/Sir,

The University of South Africa (UNISA) extends warm greetings. By this letter, we want to certify that Mr. Teka Tesfay Asgedom (student number 46529705) is a PhD student in the department of Health Studies at the University of South Africa (UNISA). Currently, he is at the stage of data collection on his doctoral thesis entitled "***Substance abuse among undergraduate students at a university in Ethiopia.***"

This is therefore to kindly request your cooperation in providing the student access to data sources from your hospital. We would like to thank you in advance for all the assistance that you would provide to the student.

Sincerely,

UNISA REGIONAL LEARNING CENTRE
PO BOX 13836 ADDIS ABABA, ETHIOPIA
TEL +251-114-350141
+251-114-350078
FAX +251-114-351243
MOBILE +251-912-191483

Tsige GebreMeskel Aberra

Deputy Director – Academic and ICT Support

UNISA – ETHIOPIA Centre for Graduate Studies

University of South Africa
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Facsimile: +251 11 435 1242/ 43/ 44
Mobile: +251 912 19 1483
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ANNEXURE E: LETTER OF PERMISSION FROM THE TARGET HOSPITAL, OFFICE OF MEDICAL DIRECTOR TO ACCESS DATA SOURCES

Dawlada Deeganka Soomaalida Itoobiya
Cusbitalka Guud ee Karamardha
Jig- Jiga

Ethiopian Somali Regional State
Karamara General Hospital
Jig-jiga

የኢትዮጵያ ሶማሌ ክልላዊ መንግስት
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ጅግጅጋ

Sum/Ref/: ቁጥር 2/7385

Taar/Date/ ቀን 23/12/09

To:-Whom it may concern

Dears Madam/Sir

Mr.Teka Tesfay is conducting a PHD dissertation entitled substance abuse among undergraduate students at a university in Ethiopia.Therefore, we kindly request for your cooperation in providing han access to data sources.

With Best Regards

Dr. mulyadi

ሜዲካል ዳይሬክተር
Medical Director

Dawlada Deeganka Soomaalida Itoobiya Karamara Hospital

☎ 025 - 7752536 - Medical Director
☎ 025 - 773863 - Informatin
☎ 025 - 7754538 - Delevery ward
☎ 025 – 7752534 - (CEO) Chief Excutive offcer
✉ 6
🖷 Fax 0257752534
Jijiga – Ethiopia

ANNEXURE F: LETTER OF REQUESTING PERMISSION FROM ADMINISTRATION OF THE TARGET

UNIVERSITY FOR DATA COLLECTION

THE TARGET UNIVERSITY

P.O.Box:_____

JIJIGA

SUBJECT: REQUEST FOR PERMISSION TO CONDUCT A RESEARCH AT TARGET UNIVERSITY

Dear Sir/Madam

My name is Teka Tesfay and I am a student at the University of South Africa (UNISA) in South Africa. The research I wish to conduct for my Doctoral dissertation involves ‘‘SUBSTANCE ABUSE AMONG UNDERGRADUATE STUDENTS AT A UNIVERSITY IN ETHIOPIA’’.

I am hereby seeking your consent to approach undergraduate students, administrative officers, and members of students’ council at target University.

I have provided you with a copy of my dissertation proposal which includes copies of the measure and consent and assent forms to be used in the research process, as well as a copy of the approval letter which I received from the UNISA Department of Health studies’ Higher Degrees Committee.

Upon completion of the study, I undertake to provide the university with a bound copy of the full research report. If you require further information, please do not hesitate to contact me at cell phone +251-934 33 50 30 and E-mail: twot24@yahoo.com. Thank you for your time and consideration in this manner.

Yours sincerely,

Teka Tesfay

University of South Africa (UNISA)

ANNEXURE G: LETTER OF REQUESTING PERMISSION FROM ADMINISTRATION OF THE TARGET HOSPITAL FOR DATA COLLECTION

TARGET HOSPITAL

P.O.Box:_____

JIJIGA

SUBJECT: REQUEST FOR PERMISSION TO CONDUCT A RESEARCH AT TARGET HOSPITAL

Dear Sir/Madam

My name is Teka Tesfay and I am a student at the University of South Africa (UNISA) in South Africa. The research I wish to conduct for my Doctoral dissertation involves ‘‘SUBSTANCE ABUSE AMONG UNDERGRADUATE STUDENTS AT A UNIVERSITY IN ETHIOPIA’’.

I am hereby seeking your consent to approach health providers at undergraduate students, administrative officers, and members of students’ council at target Hospital.

I have provided you with a copy of my dissertation proposal which includes copies of the measure and consent and assent forms to be used in the research process, as well as a copy of the approval letter which I received from the UNISA Department of Health studies’ Higher Degrees Committee.

Upon completion of the study, I undertake to provide the Hospital with a bound copy of the full research report. If you require further information, please do not hesitate to contact me at cell phone +251-934 33 50 30 and E-mail: twot24@yahoo.com. Thank you for your time and consideration in this manner.

Yours sincerely,

Teka Tesfay

University of South Africa (UNISA)

ANNEXURE H: LETTER OF REQUESTING FOR VALIDATING THE GUIDELINES FOR PREVENTION AND CONTROL OF SUBSTANCE ABUSE AMONG UNIVERSITY STUDENTS

Dear Sir/Madam

My name is Teka Tesfay and I am a student at the University of South Africa (UNISA) in South Africa. The research I wish to conduct for my Doctoral dissertation involves ‘‘SUBSTANCE ABUSE AMONG UNDERGRADUATE STUDENTS AT A UNIVERSITY IN ETHIOPIA’’.

I am hereby seeking your contribution in validating the guidelines for prevention and control of substance abuse among university students in Ethiopia. The guidelines are developed based on the findings of this study, the literature review, and my own intuitive views. You may use the following guiding principles while evaluating the guidelines:

1-The significance of the identified problem related substance abuse.

2-The strength of the research evidence.

3-The link to national standards.

4-The cost effectiveness of using the guidelines in practice.

Once you complete evaluating the guideline, you can share me your views through e-mail, telephone, or face-to-face discussion-whichever is convenient for you.

If you require further information, please do not hesitate to contact me at cell phone +251-934 33 50 30 and E-mail: twot24@yahoo.com. Thank you for your time and consideration in this manner.

Yours sincerely,

Teka Tesfay

University of South Africa (UNISA)

ANNEXURE I: LETTER OF SUPPORT FROM UNISA, ETHIOPIA LEARNING CENTRE TO ETHIOPIAN FMHACA

UNISA university of south africa

16 JANUARY, 2017

UNISA-ET/KA/ST/29/16-01-17

ETHIOPIAN FOOD, MEDICINE AND HEALTH CARE ADMINISTRATION

ADDIS ABABA

Dears Madam/Sir,

The University of South Africa (UNISA) extends warm greetings. By this letter, we want to certify that Mr. Teka Tesfay Asgedom (student number 46529705) is a PhD student in the Department of Health Studies at the University of South Africa (UNISA). Currently, he is doing his PhD thesis entitled "Substance abuse among undergraduate students at a university in Ethiopia".

This is therefore to kindly request you to assist the student in anyway that you can. We would like to thank you in advance for all the assistance that you would provide to the student.

UNISA REGIONAL LEARNING CENTRE
PO BOX 13836 ADDIS ABABA ETHIOPIA
TEL +251-114-350141
+251-114-350078
FAX +251-114-351243
MOBILE +251-912-191483

Sincerely,

Tsige GebreMeskel Aberra

Deputy Director – Academic and ICT Support

University of South Africa
Regional Learning Center
P.O. Box: 13836, Addis Ababa, Ethiopia
Telephone: +251 11 435 2244 / +251 11 435 0078
Facsimile: +251 11 435 1242/ 43/ 44
Mobile: +251 912 19 1483
www.unisa.ac.za

ANNEXURE J: THE CONSENT FORM FOR QUALITATIVE DATA COLLECTION

TITLE OF RESEARCH PROJECT

SUBSTANCE ABUSE AMONG UNDERGRADUATE STUDENTS AT A UNIVERSITY IN ETHIOPIA

NATURE AND PURPOSE OF THE STUDY

The proposed study will employ a mixed method design. The aim of this study is to identify, describe and analyse the behaviour of substance abuse among undergraduate students at target University so as to develop a strategy to mitigate this behaviour.

RESEARCH PROCESS

In this study, you are requested to attend a face-on-face interview. The information that you are required to provide pertains to the behaviour of substance abuse among undergraduate students at the target University and a strategy that can be used to mitigate the consequences of the substance abuse.

NOTIFICATION THAT PHOTOGRAPHIC MATERIAL, TAPE RECORDINGS, ETC WILL BE REQUIRED

While conducting the interview, your responses will be audio-taped and transcribed so as your ideas will be fully incorporated in the study.

CONFIDENTIALITY

No information of you provide will be shared to anyone else but the results of the study will be submitted to all bodies that need it so. No one other than the researcher and the transcriber will listen to your recorded voice and your response will remain anonymous.

WITHDRAWAL CLAUSE

Your participation in this study is completely voluntary and even you can terminate your participation at any point.

POTENTIAL BENEFITS OF THE STUDY

Even though this study may not benefit you directly, your participation will benefit those who practice substance abuse as they will get information on how to mitigate this problem.

INFORMATION (contact information of your supervisor)

Supervisor	**Joint Supervisor**
Prof AH Mavhandu-Mudzusi	Prof JH Roos
+27 4292055	Tel +27 0721266894
mmudza@unisa.ac.za	roosjh@unisa.ac.za
Health Studies	Health Studies, Unisa

CONSENT

I, the undersigned, ----------(full name) have read the above information relating to the project and have also heard the verbal version, and declare that I understand it. I have been afforded the opportunity to discuss relevant aspects of the project with the project leader, and hereby declare that I agree voluntarily to participate in the project.

I indemnify the university and any employee or student of the university against any liability that I may incur during the course of the project.

I further undertake to make no claim against the university in respect of damages to my person or reputation that may be incurred as a result of the project/trial or through the fault of other participants, unless resulting from negligence on the part of the university, its employees or students.

I have received a signed copy of this consent form.

Signature of participant: .....

Signed at …… on ……

ANNEXURE K: THE CONSENT FORM FOR QUANTITATIVE DATA COLLECTION

Informed consent

Dear Respondent,

My name is Teka Tesfay and I am a student at the University of South Africa (UNISA) in South Africa. The research I wish to conduct for my master's dissertation involves **''SUBSTANCE ABUSE AMONG UNDERGRADUATE STUDENTS AT A UNIVERSITY IN ETHIOPIA**''. This project will be conducted under the supervision of Prof. Mavhandu Mudzusi (UNISA, South Africa) and Prof JH Roos (UNISA, South Africa).

In this study, you are requested to complete a self- administered questionnaire. The questions are about your knowledge, perception and behaviour towards substance use. The purpose of this study is to identify, describe and analyse the behaviours of substance abuse among undergraduate students at the target University so as to develop guidelines for mitigating the burden of substance abuse among university students. It will take you about half an hour to complete the questionnaire. You can complete the questionnaire at a time which is convenient for you. No information of you provide will be shared to anyone else but the results of the study will be submitted to all bodies that need it so. The questionnaire will not bear your identity and when the results of the study are provided to anybody, your response will remain anonymous.

In order to maintain your anonymity, you will not be asked to complete a consent form. The implication of completing the questionnaire is that informed consent has been obtained from you. Your participation in this study is completely voluntary and even you can terminate your participation at any point.

Thank you in advance for deciding to participate in the study. Please feel free to ask me any question you may have.

Kind regards

Teka Tesfay

ANNEXURE L: COVERING LETTER ACCOMPANYING THE SELF ADMINISTERED QUESTIONNAIRE

Dear Sir/Madam,

SUBJECT: SUBSTANCE ABUSE AMONG UNDERGRADUATE STUDENTS AT A UNIVERSITY IN ETHIOPIA

This study is conducted as a requirement for the completion of the degree of Doctor of Literature and Philosophy (DLitt et Phil) in Health Studies from the University of South Africa. The purpose of this study is to identify, describe and analyse the behaviours of substance abuse among undergraduate students at the target University so as to develop guidelines for mitigating the burden of substance abuse among university students.

I would like to invite your participation in this study by filling up the attached questionnaire. All information provided will be treated with strict confidentiality and only aggregate data will be analysed and reported. As such, individuals who respond to this questionnaire will not be identified. The filling of the questionnaire will take approximately 30 minutes and your participation is highly appreciated.

Once, you completed the questionnaire, I kindly request you to put them in the sealed boxes which are prepared for collecting the questionnaires.

I thank you very much for your valuable contribution in participating in this study.

Kind regards,

Teka Tesfay Asgedom (BSc, BA, MPH, DLitt et Phill [Candidate])

ANNEXURE M: SELF-ADMINISTERED QUESTIONNAIRE

QUESTIONNAIRE

Please follow the following instructions while responding to the questions.

1. Please do not write your name or ID number in this questionnaire.
2. Please response to each question truthfully.
3. Some questions may be difficult to understand. Please ask for clarification
4. After completing the questionnaire, please insert it in the sealed box at the door of the room.
5. Please begin

SECTION I: DEMOGRAPHIC DATA

1 Your gender: a) Male b) Female

2 Your age (in full years): Please describe:_____

3 Your religion: a)Orthodox Christian b)Protestant c)Roman catholic d)Muslim

e) Other please describe:_____

4 Where did you grow up? a)Urban area, b)Small town, c)Rural area

5 Region where you grew up? a) North Ethiopia, b)South Ethiopia, c) East Ethiopia, d) West Ethiopia, e) Central Ethiopia, f) Harar, j) Addis Ababa, k) Dire dawa

6 Your marital status? a)Married b)Never married c) Separated d)Divorced e) Widowed/widower

7 What was your GPA in the last semester? Please describe:_____

SECTION II: SUBSTANCE ABUSE

The next **11** questions ask you about your experiences with regard to substance abuse

8. On how many occasions (if any) have you smoked cigarettes **(mark on one cell in each row)**

	Number of occasions						
	0	1-2	3-5	6-9	10-19	20-39	>39
In your life time							
During the last 12 months							
During the last 30 days							

9. How frequently have you smoked cigarettes during the last 30 days?

- Not at all
- Less than 1 cigarette per week
- Less than 1 cigarette per day
- 1-5 cigarettes per day
- 6-10 cigarettes per day
- 11-20 cigarettes per day
- More than 20 cigarettes per day

10. On how many occasions (if any) have you had any alcoholic beverage to drink (more than just a few sips)? **(Mark one cell in each row).**

	Number of occasions						
	0	1-2	3-5	6-9	10-19	20-39	>39
In your life time							
During the last 12 months							
During the last 30 days							

11. Think back over the last 30 days. How many times (if any) have you had five or more drinks at once? **(A "drink" is a glass of wine, a bottle of beer, a shot of spirits (1 መለኪያ ደረቅ መጠጥ)) or a mixed drink or local liquor.)**

- None
- 1
- 2
- 3-5
- 6-9
- 10 or more times

12. Have you ever heard of any of the following drugs? (**Mark one cell in each row)**

	Yes	No
Tranquillizers or sedatives		
Marijuana (grass, pot) or hashish (hash, hash oil)		
Amphetamines (uppers, pep pills, bennies, speed)		
Ecstasy		
Relevin		
Crack		
Cocaine		
Heroin		

13. How many times in your life (if any) have you abused any of the following drugs or substances? **(Mark one cell in each row)**.

	Number of occasions						
	0	1-2	3-5	6-9	10-19	20-39	>39
Khat							
Shisha							
Marijuana (grass, pot) or hashish (hash, hash oil)							
Cocaine							
Heroin (smack, horse)							
Other drug or substance (specify)_____							

14. How many times in the last 30 days (if any) have you abused any of the following drugs or substances? **(Mark one cell in each row).**

	Number of occasions						
	0	1-2	3-5	6-9	10-19	20-39	>39
Khat							
Shisha							
Marijuana (grass, pot) or hashish (hash, hash oil)							
Cocaine							
Heroin (smack, horse)							
Other drug or substance (specify)_____							

15. How old were you when (if ever) you FIRST abuse each of the following substances/drugs? (**Mark one box in each row)**.

	Age in years					
	Never used	<11years old	11-13years old	14-16 years old	17-19 years old	>20 years old
Khat						
Cigarette						
Shisha						
Alcohol						
Marijuana (grass, pot) or hashish (hash, hash oil)						
Cocaine						
Heroin (smack, horse)						
Other drug or substance (specify):_____						

16. What is the reason (if ever) for abusing each of the following substances?

	Reason for abuse					
	It helps me study hard	Because my friend/s use/s it	It makes me happy	To get relieve from anxiety	Curiosity (to see what it feels)	Other (specify)
Khat						
Cigarette						
Shisha						
Alcohol						
Other substance (specify:_____						

17**.** How difficult do you think it would be for you to get each of the following, if you wanted? (**Mark one box in each row)**.

	impos sible	Very difficult	Fairley difficult	Fairly easy	Very easy	Don't know
Khat						
Cigarette						
Shisha						
Alcohol						
Marijuana (grass, pot) or hashish (hash, hash oil)						
Cocaine						
Heroin (smack, horse)						
Other drug or substance (specify)_						

18. Think about substance abuse among your parents/relatives/friends. Which one of the following substances or drugs (if any) do they abuse? **(Mark in each row)**

	Father	Mother	Brother	Sister	Other relative	Friend
Khat						
Cigarette						
Shisha						
Alcohol						
Marijuana (grass, pot) or hashish (hash, hash oil)						
Cocaine						
Heroin (smack, horse)						
Other drug or substance (specify)_____						
None of these substances						

19-how likely is it that each of the following things would happen to you if you abuse substance? (Mark one box in each row)

	Very likely	Likely	Unsure	Unlikely	Very unlikely
Feel happy					
Feel relaxed					
Forget problem					
Harm my health					
Get addicted					
Do something I would reject					

The next **4** questions ask you about your knowledge with regard to the policies/rules/regulations or conditions in your country and/or university that may positively or negatively impact on the behaviour of substance abuse.

20. Do you know any policy/rule in your University that helps the prevention of substance abuse? If so, list in the space provided:

_____

_____

21. Is there anything that promotes substance abuse in/around the university? If so, list in the space provided:_____

_____

22. Do you know any national policy/rule/regulation that helps the prevention of substance abuse? If so, list in the space provided:_____

_____

23. In your opinion, what should be done to prevent the substance abuse among University students? Please provide your response in the space provided:

_____

_____

_____

The end
Thank you very much

ANNEXURE N: INTERVIEW SCHEDULE

INTERVIEW SCHEDULE FOR QUALITATIVE DATA COLLECTION

Part I: Demographic data

1. Your gender:_____
2. Your age in full years_____
3. Your qualification and educational background _____
4. Your department_____
5. Years of experience in the current department_____

Part II: Questions on the behaviour of substance abuse

1. How do you describe the practice of substance abuse among regular undergraduate students at the target University?
2. Behaviour is affected by multiple levels of influence including intrapersonal, interpersonal, institutional, community and societal factors (Winch 2012:6, 9). In your view, how do you describe the influence of these factors with regard to substance abuse among regular undergraduate students at the target University? What other important factors do you think influence the behaviour of the students?
3. In your view, what factors do contribute for starting/and or continuing substance use?
4. To reduce the impact of substance abuse among University students, a country needs to have a policy/guideline/strategy on which it bases its intervention. What national policy/guideline/strategy do you recommend for Ethiopia?
5. To reduce the impact of substance abuse among University students, institutions need to have a strategic guideline on which they base their intervention. What guidelines do you recommend for institutions in Ethiopia including the target University?
6. Do you have any suggestion on how to mitigate the behaviour of substance abuse among regular undergraduate students at the target University?
7. You are welcomed if you have additional comments.

Thank you very much for your contribution

Annexure O: Scale Validity Index (S-CVI) and Item Validity Index (I-CVI)

The scale Items shown below have been developed to measure dimensions of the constructs of substance abuse among undergraduate students. Please read each item and score it for its relevance in representing this concept. While rating, please give 1 for not relevant, 2 for somewhat relevant, 3 for quite relevant and 4 for highly relevant in the table below.

Items	Relevance rating			
1-On how many occasions (if any) have you smoked cigarettes	Not relevant	Somewhat relevant	Quite relevant	Highly relevant
2-How frequently have you smoked cigarettes during the last 30 days				
3-Think back over the last 30 days. How many times (if any) have you had five or more drinks at once?				
4-Have you ever heard of any of the following drugs?				
5-How many times in your life (if any) have you abused any of the following drugs or substances?				
6-How many times in the last 30 days (if any) have you abused any of the following drugs or substances?				
7-How old were you when (if ever) you FIRST abuse each of the following substances/drugs?				
8-What is the reason (if ever) for abusing each of the following substances?				
9-How difficult do you think it would be for you to get each of the following, if you wanted?				
10-Think about substance abuse among your parents/relatives/friends. Which one of the following substances or drugs (if any) do they abuse?				

11-How likely is it that each of the following things would happen to you if you abuse substance? (Indicate your response by selecting (very likely, likely, unsure, unlikely, very unlikely)). • Feel happy • Feel relaxed • Forget problem • Harm my health • Get addicted • Do something I would reject				

ANNEXURE P: GUIDELINES FOR PREVENTION, CONTROL, AND MANAGEMENT OF SUBSTANCE ABUSE AMONG UNDERGRADUATE UNIVERSITY STUDENTS IN ETHIOPIA

Guidelines based on the dimensions at intrapersonal level

These guidelines are based on the attributes available at individual levels including the demographic characteristics of students and perceptions of students towards substance abuse.

Demographic characteristics of students

The demographic characteristics of the students have been identified as important factors in the behaviour of substance abuse at individual levels and the following guidelines were developed based on the age and the sex of the students.

The undergraduate university students are young people in the age of 18 to 25 years and thus have special vulnerability to substance abuse (Section 4.3.1 and Sub-theme 2.2). Thus,

To make interventions at universities youth friendly,

- Design health education messages using arts such as dramas and music.
- Design health education messages that can be delivered at sport events.
- Design health education messages that use colloquial words of the youth.
- Design health education messages that can be posted on materials that the youth in the universities use (example note books, chewing gums etc).
- Design youth friendly health services including prevention and management of substance abuse disorders.
- Screen all students who present to clinics for signs of substance induced disorders.
- Manage those students who develop substance abuse disorder in a youth friendly manner.
- Link affected students with organisations who work on youth health as they can have the resources and expertise in managing such problems.

Most of the students at the university are males and males are the most affected ones by substance abuse (Table 4.1 and Tables 4.19, 4.20, and 4.21). Thus,

To make interventions gender sensitive,

- Design gender sensitive health education programmes.
- Use sport events to pass messages on consequences of substance abuse to students as most male students participate in sport activities.
- Use the gathering of students for sport programmes in the media such as DStv to pass messages to students as most male students follow these media.
- Post pamphlets with short messages on substance abuse on male dormitories.

Students' perception towards substance abuse

Students' perception towards substance abuse was examined in the study and the following guidelines were developed based on findings of the study in this regard.

Most students perceive that they can drive happiness from substance abuse (Table 4.18). Thus,

To correct students' misperceptions regarding driving happiness,

- Educate students that the long term consequences of substance abuse outweigh driving short term happiness from substance abuse.
- Educate students about long term consequences such as acquiring HIV infection, development of dependence and addiction, many physical health problems related to substance abuse, and the economic crisis related to substance abuse.
- Provide healthy and affordable recreational services such as sports field, enough television rooms, students' lounges, etc.
- Promote healthy recreational activities such as sports competitions in the university campuses.

Most students perceive that they can get relaxed by abusing substances (Table 4.18). Thus,

To change students' perception regarding relaxation,

- Educate students on healthy options of relaxation.
- Educate students on the risk of using substances for relaxation.

Most students perceive that they can forget their problems by abusing substances and many students abuse substances to cope with stressful situations (Table 4.18 and sub-theme 5.1). Thus,

To change students' behaviour regarding coping with stressful situations,

- Provide life skill trainings on how to cope with stressful situations.
- Educate students to prepare for exam beforehand as exam related stresses emanate from lack of early preparation.
- Train students on effective and efficient reading skills as efficient reading prevents exam related stress.

Most students perceive that substance abuse can harm their health but their behaviour of substance use is incongruent with this perception (Tables 4.18, 4.22, and 4.24). Thus,

To translate students' perception regarding the harmful effect of substance abuse into substance free behaviour,

- Provide students with re-enforcing supports such as skills on how to avoid substance abuse.
- Avoid or reduce factors that promote substance abuse in the university campuses such as easily access to substances, substance use among students, substance use among university staff, etc.

Students' commitment is necessary to remain free of substance abuse (Sub-theme 2.1). Thus,

To enhances students' commitment towards remaining substance free,

- Educate students that commitment on their side is necessary to remain free of substance abuse.
- Build the confidence of students on remaining substance free.

Guidelines based on the dimensions at interpersonal level

Interpersonal relations with people including family members, peer groups, and other relatives were found to impact the behaviour of substance abuse among university students. The underneath guidelines were developed based on the findings of the study in this regard.

The influence of substance abuse among family members on students' substance abuse

Substance abuse among family members of students was found to influence substance abuse among students. The following recommendations were made based on these claims.

Substance abuse among students' fathers has strong positive association with substance abuse among students (tables 4.25, 4.26, and 4.27 and sub-theme 3.1). Thus,

To minimise students' adaptation of substance abuse from family members,

- Engage family members (especially fathers) in the endeavours of prevention and control of substance abuse among students.
- Family members (especially fathers and siblings) need to be educated on the effect of substance abuse in front of children on the children's feature substance abuse behaviour.
- Arrange family forums where discussion about substance abuse can be held.
- Develop and distribute pamphlets on substance abuse to students' family members.

The influence of substance abuse among peers on students' substance abuse

Substance abuse among peer groups was found to influence substance abuse among students. The following recommendations are based on these findings.

Substance abuse among students' peers has strong positive association with substance abuse among students (Tables 4.28, 4.29, and 4.30 and Sub-theme 3.2). Thus,

To minimise peer influence with regard to substance abuse among students,

- Educate students on how to cope with peer influence.
- Educate students to positively influence their substance abuser peers but not get influenced by them.
- Reduce the prevalence of substance abuse in the university compound. Reduction in prevalence of substance abuse among students ensures protection of students who did not adapt the habit of substance abuse.
- Establish and strengthen anti-substance clubs so as to cascade substance free behaviours among students.

Guidelines based on the dimensions at institutional level

The findings of the study indicate that institutions play unique role in relation to substance abuse. The main institutional attributes related substance abuse among students include higher rate of substance abuse among students, substance abuse for academic works, legislations related to substance abuse, commitments on the side of the university officials.

The burden of substance abuse among university students

The findings of the study show higher burden of substance abuse among students and the following guidelines are based on these findings.

Most of the university students are naive to the hard substances such as heroin, and cocaine (Table 4.6). Thus,

To maintain the current low prevalence of the abuse of hard substances like heroin and cocaine,

- Design strategies to maintain the current low rate of the abuse of hard substances.

- Develop special legislations on strict control of holding and abusing hard substances in the university compound.
- Educate students on the consequences of abuse of such hard substances.

The prevalence of the abuse of substances such as cigarette, alcohol, khat, and shisha is high among the university students (Tables 4.7, 4.8, 4.9, 4.10 and Theme 1). Thus,

To reduce the burden of abuse of such substances among university students,

- Be cognisant that substance abuse among university students is such a grave problem that deserves immediate intervention.
- Conduct studies on substance abuse to assess the burden and determinant factors of substance abuse.
- Work towards translating available evidences into practice.
- Assign specific offices or professionals that work towards prevention and management of substance abuse.
- Equip designated offices with the necessary resources that can make them work effectively and efficiently.
- Give special attention to the consequences of the abuse of alcohol, cigarette, shisha, and khat in the endeavours of prevention and management of substance abuse among students.
- Educate students on the consequences of use such substances.
- Institute prevention, control, and management measures specific to these substances.

Most students start abusing substances at the age of 17 to 20 years, which is the age of entrance to the universities (Table 4.14 and Theme 1). Thus,

To make universities free of substance abuse for students,

- Mainstream health education on substance abuse in the preparatory schools.

- Focus prevention and control efforts starting first year university students.

Academic work as factor for substance abuse

The findings of this study support claims by previous studies that many university students use substances for academic works. The following recommendations are in line with these claims.

Most students cited academic work as a reason for khat chewing (Table 4.15 and Sub-theme 5.2). Thus,

To correct the misperceptions regarding neuro-enhancement through substance abuse among students,

- Educate students that studies indicate that substance abuse is counterproductive for academic work.
- Educate students that studies show substance abuse can jeopardise their academic performance.
- Train students on studying strategies (time management, reading skills) without using stimulants.

The students' academic performance as measured using their last Grade Point Average show no association with their substance abuse (Tables 4.40, 4.41, and 4.42 and Sub-theme 5.2). thus,

To correct students' perception regarding the use of substances for academic work,

- Educate students that substance abuse doesn't improve students' academic performance.

Legislations related to substance abuse

Legislations related to substance abuse play an important role in promoting substance free environment in university campuses. The following recommendations are developed based on the findings of this study with regard to legislations related to substance abuse at the target University.

Substances such as alcohol, cigarette, shisha, and khat are easy to access to students which makes them more vulnerable to substance abuse eliciting craving to these substances (Tables 4.16, 4.44, 4.46 and Category 5.4.5). Thus,

To minimise students' craving to these substances,

- Develop and implement legislations that limit the sale of substances around the university compound.
- Limit the sale of substances around the university compound.
- Train and empower the university guards/police members on control of sale of substances around the university compound.

The law enforcement regarding substance abuse at the target University is not strong (Tables 4.44, 4.46 and Category 5.4.5). Thus,

To strengthen the law enforcement on substance abuse in the university compound,

- Develop and follow the implementation of code of conduct of the university regarding substance abuse.
- Train and empower the university guards/police members on control of substance abuse in the university compound.

A substantial number of students at the target University do not know about the policy of the university with regard to substance abuse (Table 4.43 and Category 5.4.5). Thus,

To raise the awareness of the students on the university's policy regarding substance abuse,

- Develop awareness raising programmes on the policies of the university with regard to substance abuse.
- Educate students on the legal consequences of substance abuse in the university compound.
- Educate students about the code of conduct of the university with regard to substance abuse.
- Develop and distribute pamphlets that contain the code of conduct of the university with regard to substance abuse to students.

- Develop and post posters with short messages about the policy of the university on substance abuse on visible corners of the university compound.

Students can adapt the behaviour of substance abuse from their instructors (Sub-theme 5.3). Thus,

To minimise the risk of adaptation of the behaviour of substance abuse from instructors by the students,

- Develop legislations on substance abuse among instructors of the institution.
- Restrict the abuse of substances by instructors in the university compound.
- Restrict the seating of instructors of the institution with students for substance abuse.

Substance abuse among university workers at the university compound promotes substance abuse among students (Category 5.4.5). Thus,

To prevent the adaptation of the behaviour of substance abuse from the university's workers by the students,

- Develop and implement code of conduct that governs the university workers and people who visit the university with regard to substance abuse.
- Restrict the abuse of substances by the university workers in the university compound.
- Educate the university workers about the legal and health consequences of substance abuse.
- Ensure substance free environment in the university compound through strict control of substance abuse by any person who visits the university.

Commitments on the side of the university officials

The university officials' commitment was emerged as important part of the endeavours of prevention of substance abuse among students in the qualitative part of the study. The following recommendations are based on these findings.
Sharing the challenges of the students by the university officials reduces stresses on students which in turn helps to remain substance free (Sub-theme 5.4.1). Thus,

To support students in coping with their challenges,

- Design strategies that could make the bureaucracy of the university easy to students.
- Ensure that university officials sympathetically share students' challenges.
- Ensure that students are getting the necessary support from the responsible offices.
- Ensure that officials are available on office hours to support students.
- Ensure that legitimate inquires of students are attended properly and timely.
- Ensure that students are treated with dignity and autonomy by the responsible offices.

Coordinating all bodies that work on youth health and substance abuse helps in resource mobilisation (Category 5.3.3). Thus,

To ensure efficient use of the available resources for mitigating the burden of substance abuse,

- Coordinate all bodies that work towards reducing the burden of poor health including substance abuse among youths.
- Study, enlist, and solicit for support from all potential bodies that work on youth health and substance abuse.
- Integrate the different students' associations including anti-AIDS association, students' peace forum, and students' union so that they can work synergistically towards empowering students to develop healthy behaviour including substance free behaviour.
- Create links with youth centres around the university to resource support from these organisations.
- Solicit for help from organisations such as Non-Governmental Organisations, Faith Based Organisations etc that work on youth health.
- Solicit support from capable health institutions on supporting students who develop substance induced disorders.
- Solicit the necessary support from police officers to train university guards/police members on control of substance abuse.

Establishing anti-substance abuse clubs encourages students to participate in the endeavours of prevention of substance abuse (Categories 5.4.1 and 5.4.4). Thus,

To encourage students' participation in the prevention, control, and management of substance abuse,

- Organise and encourage students to establish anti-substance abuse clubs.
- Encourage students to be members of the anti-substance abuse clubs.
- Train members of anti-substance abuse on prevention and management of substance abuse.
- Encourage and support anti-substance abuse clubs to reach the needy students.
- Support anti-substance abuse clubs with the necessary logistics.
- Equip the students' associations and anti-substance abuse clubs with resources such as mini-media as these tools help them pass messages.
- Equip students' associations and anti-substance abuse clubs with computers and printers for duplicating health education materials.
- Equip students' associations and anti-substance abuse clubs with music materials for entertaining their target clients.

Modify the students' clinic

The students' clinic in the university campus needs to address the special needs of students affected by substance abuse. The following recommendations emerged from the findings of the qualitative part of the study in this regard.
The university clinic lacks the necessary staff to help students with psychological and mental problems (Category 5.4.6). Providing sufficient mental health services and psychological supports to the needy students contributes to prevention of substance use. Thus,

To provide sufficient mental health services and psychological supports to the needy students,

- Include mental health service to the students' clinic.
- Assign professionals with the necessary trainings on mental health.
- Solicit the support of mental health professionals from the surrounding hospitals.
- Solicit the support of academics who have training on mental and psychological health.

The students' clinic lacks the necessary infrastructure and medicines for helping students with substance induced disorders (Category 5.4.6). Thus,

To support students with substance induced disorders,

- Modify the students' clinic to accommodate counselling rooms and chemotherapies.
- Prepare a separate room for managing and counselling students with substance abuse problems.
- Stockpile the necessary medicines to treat students with mental health and substance abuse problems.

Guidelines based on the dimensions at the community level

The study has explored the dimensions at community level that are related to substance abuse among university students. The following guidelines are developed based on the findings of the study in this regard.

The effect of area/region of growth on substance abuse among students

Area and region of growth were found to be associated with substance abuse among students. The following recommendations are in line with these findings.
Students who grew up in urban areas are at higher risk of khat chewing compared to those who grew up in rural areas (Table 4.31). Thus,

To reduce khat chewing among university students,

- Give special attention to students who grew up in urban areas in the endeavours of prevention and management of khat chewing.
- Target students from urban area in providing education about khat chewing.
- Target high schools in urban areas in the endeavours of prevention of khat chewing.

Students who came from northern Ethiopia are at higher risk of alcohol drinking compared to those who came from the other regions of Ethiopia (Table 4.35). Thus,

To reduce alcohol drinking among university students,

- Give special attention to students who grew up in northern Ethiopia in the endeavours of prevention and management of alcohol drinking.
- Target students from northern Ethiopia in providing education about alcohol drinking.
- Target high schools in northern Ethiopia in the endeavours of prevention of khat drinking.
- Use students from eastern Ethiopia as model in the prevention of alcohol drinking among students. This is because alcohol drinking among students in eastern Ethiopia is less compared to the rest of the regions.

Students who came from northern Ethiopia are at lesser risk of khat chewing compared to the other regions of Ethiopia (Table 4.36 and Sub-theme 4.1). Thus,

To adapt the behaviour of khat chewing among students from northern Ethiopia to the rest of the students,

- Give special attention to students who grew up in regions other than northern Ethiopia in the endeavours of prevention and management of khat chewing.
- Target students from regions other than northern Ethiopia in providing education about khat chewing.
- Target high schools in regions other than northern Ethiopia in the endeavours of prevention of khat chewing.
- Use students from northern Ethiopia as models in the prevention of khat chewing among students

The effect of religious affiliation on substance abuse among students

Religious affiliations by the students were associated with their substance abuse. The following recommendations are derived from these findings.

Students who are affiliated to Orthodox Christianity are at higher risk of alcohol drinking compared to students who are affiliated to the rest of the religions (Table 4.38 and sub-theme 4.2). Thus,

To reduce the burden of alcohol drinking among Orthodox Christian students,

- Give special emphasis to students who are orthodox followers in the endeavours of prevention and management of alcohol drinking.

- Provide targeted health education to orthodox Christian followers on the consequences of alcohol drinking.
- Pay special attention to alcohol induced mental and physical illness while providing health care services to Orthodox Christian followers.
- Involve the church leaders in the prevention of alcohol drinking.
- Collaborate with the church leaders in educating students the consequences of alcohol drinking.
- Involve students who are also church leaders while educating Orthodox followers on the consequences of alcohol drinking.

Muslim students are at higher risk of khat chewing (Table 4.38 and sub-theme 4.2). Thus,

To reduce the burden of khat chewing among Muslim students,

- Give special emphasis to Muslim students in the endeavours of prevention and management of khat chewing.
- Provide targeted health education to Muslim students on the consequences of khat chewing.
- Pay special attention to khat induced mental and physical illness while providing health care services to Muslim students.
- Involve the Muslim religious leaders in the prevention of khat chewing.
- Collaborate with the Muslim religious leaders in educating students the consequences of khat chewing.
- Involve students who are also religious leaders while educating Muslim students on the consequences of khat chewing.

Guidelines based on the dimensions at societal level

Factors at societal level that may be related to the behaviour of substance abuse among university students were explored in this study.

National guidelines on prevention, control and management of substance abuse

The findings of this study show that university students are unfamiliar of the national guidelines on the prevention and control of substance abuse. The following recommendations are developed based on these findings.
Most students are unaware of the presence of national policy on substance abuse (Table 4.45 and Sub-theme 6.1). Thus,

To create an enabling environment for prevention, control, and management of substance abuse among university student,

- Conduct nationwide baseline study on the problem of substance abuse.
- Develop and implement national guidelines on the prevention, control, and management of substance abuse.
- Develop guidelines on the prevention, control, and management of substance abuse that consider university students.
- Distribute the guidelines to all responsible bodies.

University officials need support from higher governmental bodies (Category 5.4.1). Thus,

To ensure effective control of substance abuse at universities,

- Support university officials on prevention, control, and management of substance abuse.
- Train university officials on the prevention, control, and management of the problem of substance abuse.
- Organise a separate body that can oversee the proper implementation of the guidelines on university students.

All responsible bodies at national level need to be coordinated for synergistic action on control of substance abuse (Sub-theme 6.1). Thus,

To ensure integrated interventions on control of substance abuse,

- Coordinate all concerned bodies at national level.

- Call for synergistic and integrated efforts from all concerned bodies including Non-Governmental Organisations, Faith Based Organisations, the media, etc.
- Organise forums and conferences on the prevention, control, and management of substance abuse at national level.
- Encourage artists to produce arts that can educate the youths on substance abuse.

The role of the media on substance abuse

The findings of this study show that the media are not fully utilised in the endeavours of prevention and control of substance abuse among students. The following guidelines are recommended based on these findings.

Most media in the country advertise substances like alcohol without restriction (Sub-theme 6.1). Thus,

To ensure that advertisements in the media do not promote alcohol drinking,

- Develop legislations that can limit the advertisement of substances of abuse including alcohol through the media.
- Prohibit the advertisement of addictive substances to youths in sport events.
- Prohibit the advertisement of addictive substances to university students through any type of medium.

The role of the media on educating the consequences of substance abuse is minimal (Sub-theme 6.1). Thus,

To ensure that the media contribute to the endeavours of control of substance abuse,

- Encourage the media to educate the youths and the university students on substance abuse.
- Encourage the media to cover programmes/shows on substance abuse.
- Encourage the media to show artistic products on substance abuse.
- Encourage the media to invite experts on the field of substance abuse to educate the youths.

Integrating the prevention, control and management of substance abuse into the national health care system

The findings of this study suggest that integrating the efforts on the prevention and control of substance abuse into the national health care system is useful. The following guidelines are based on these findings.
Most health institutions do not have services for people affected by substance induced disorders (Sub-theme 6.2). Thus,

To provide effective support for people (including university students) affected by substance induced disorders,

- Integrate the prevention, control and management of substance abuse into the public hospitals.
- Re-innovate the infrastructures of hospitals to include counselling rooms for people affected by substance abuse.
- Stockpile medicines to treat people affected by substance induced disorders.

Management of substance abuse needs specialised training (Sub-theme 6.2). Thus,

To ensure that people (including university students) affected by substance induced disorders get appropriate management,

- Train on substance abuse and deploy professionals to the public hospitals.
- Train front line health care workers on screening and referring people affected with substance induced disorders to hospitals.

The production, trafficking, sells and abuse of substances at national level

The findings of this study show that the production, trafficking, sell and abuse of substances are less controlled at national level. The following recommendations emanated from these findings.

- The production, trafficking, sells, and abuse of substances is less controlled at national level (Sub-theme 6.1). Thus,

To ensure reduction in the supply of substances at national level,

- Design and implement policies that limit the production, trafficking, and abuse of addictive substances at national level.
- Limit the production of substances like khat and alcohol at national level.
- Limit the sell of substances like khat and alcohol at national level.
- Isolate market areas of substances from other markets.
- Restrict sell of substances in areas where usually visited by the youths including schools, higher institutions, sport fields etc.

- Many people founded the income for their livelihood on production and sell of substances like alcohol and khat (Sub-theme 6.1). Ensuring that people get alternative jobs helps in reducing supply of substances. Thus,

To ensure that people are employed at alternative economic sectors,

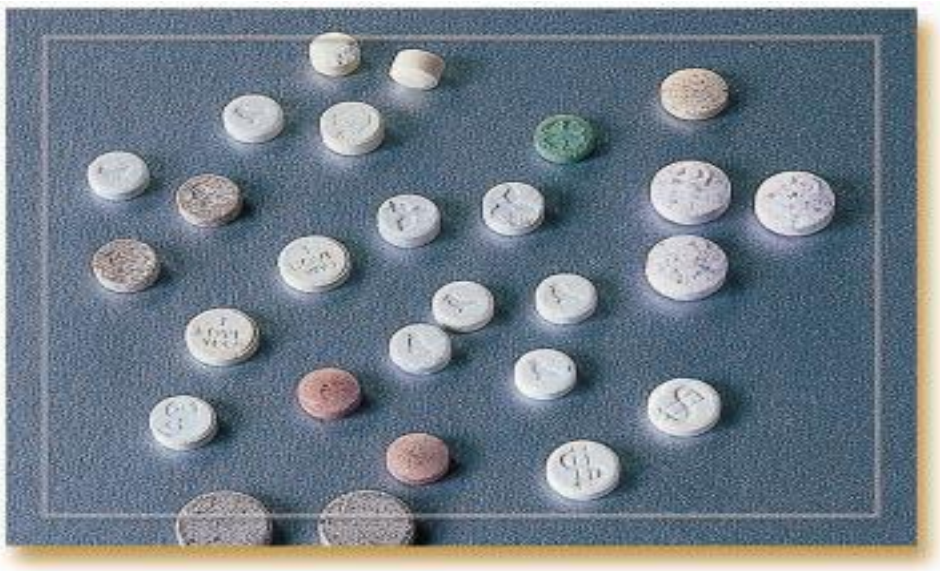
- Design a long-term plan to replace the incomes of communities who based their livelihood on production, trafficking, and sell of substances.
- Develop a long-term plan to replace the production of khat with other crops.
- Develop a long-term plan to replace the trade of khat with other alternative jobs.
- Develop a long-term plan to replace the income from the production and sell of alcohols such as local liquor in the residential areas of the community with other alternative jobs.

ANNEXURE Q: PICTURE OF SEALED BOXES USED FOR QUANTITATIVE DATA COLLECTION

Sealed boxes used for quantitative data collection

ANNEXURE R: PICTURES OF SELECTED ADDICTIVE SUBSTANCES

Cannabis
Source: South Western Area Health Board, Ireland



Ecstacy
Source: South Western Area Health Board, Ireland

Cocaine
Source: South Western Area Health Board, Ireland

Heroine
Source: South Western Area Health Board, Ireland

Students using khat and cigarette in their dormitory

Remnants of khat and cigarette in the corridors of male students' dormitory at the target University